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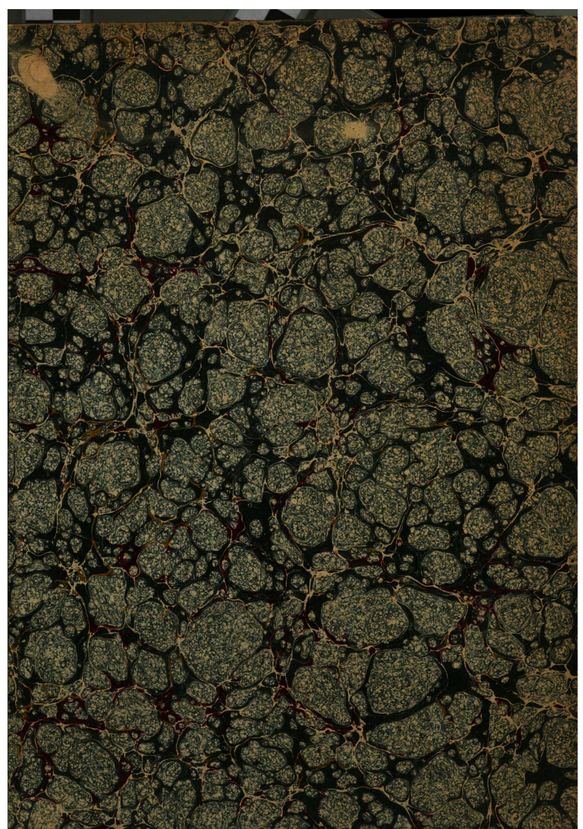
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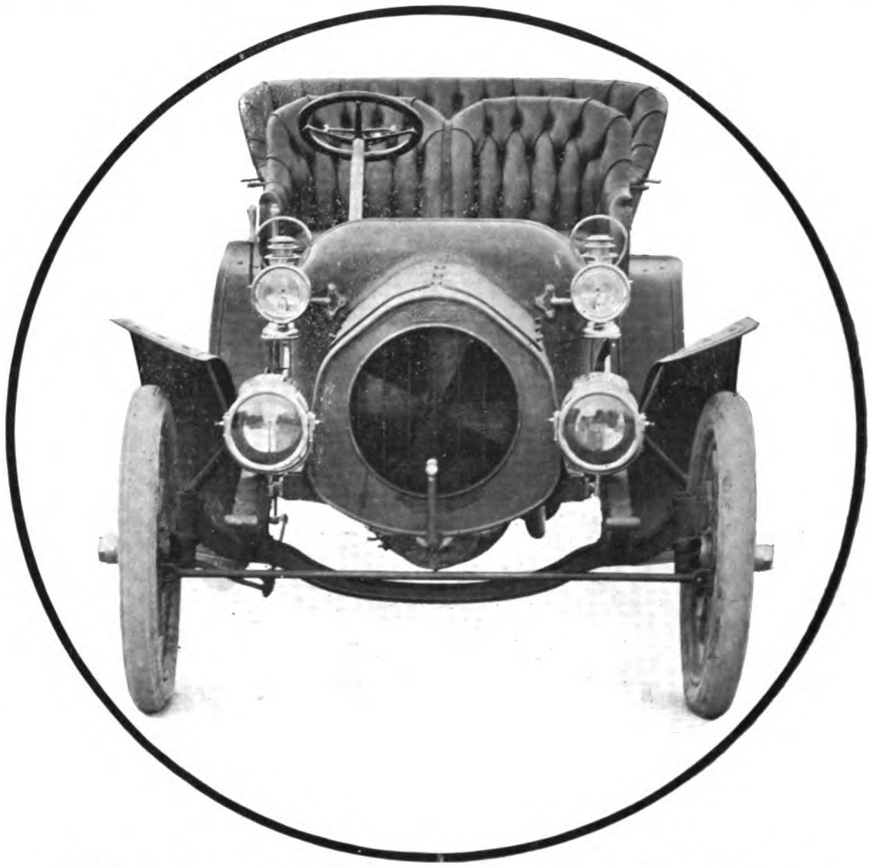
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Volume XIII
No. 1

New York, N. Y., U. S. A., June 7, 1906

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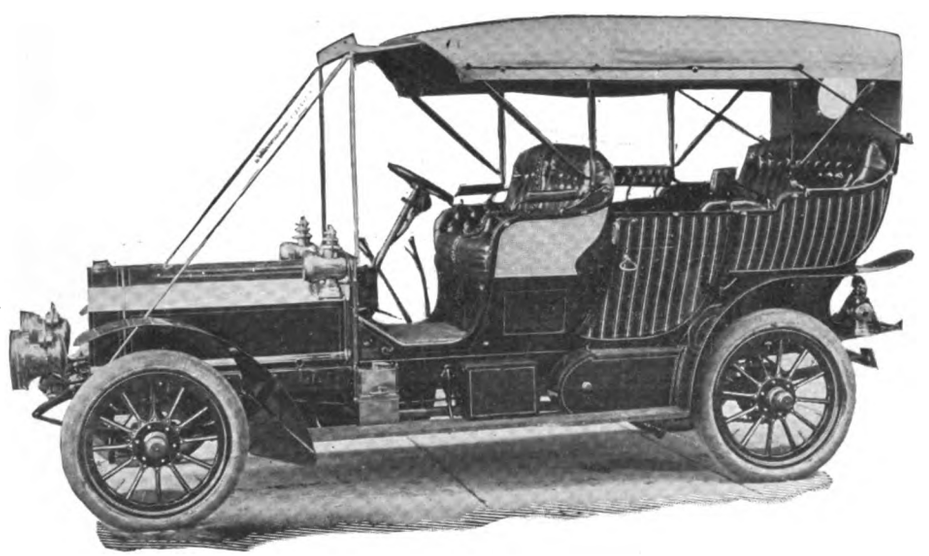
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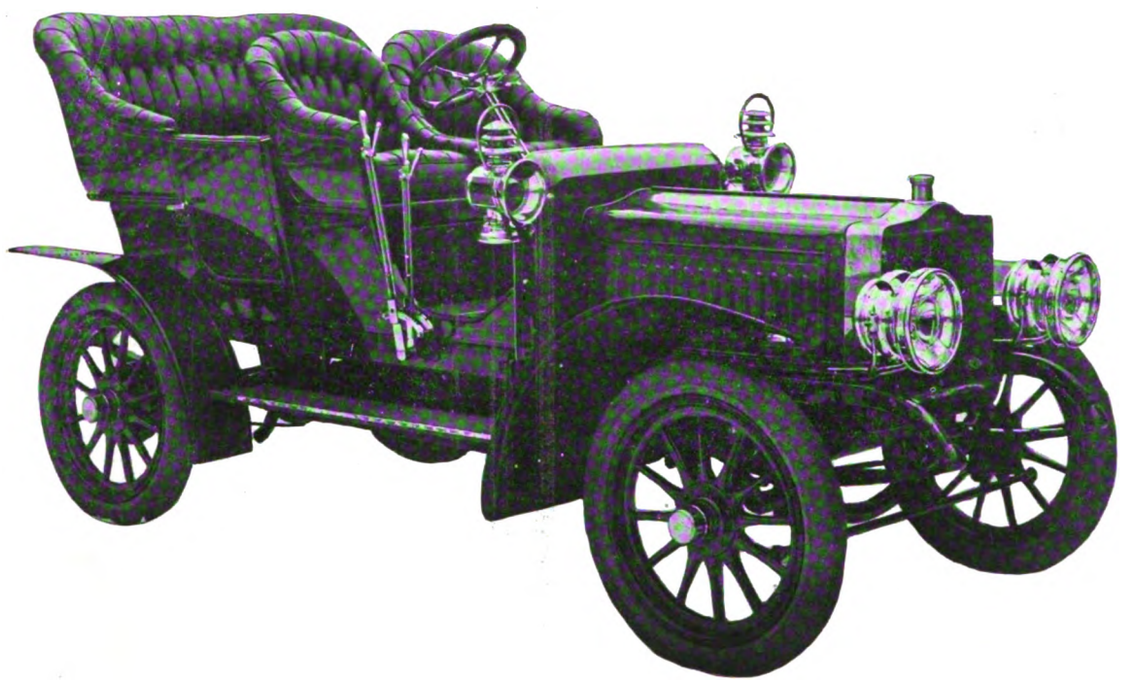
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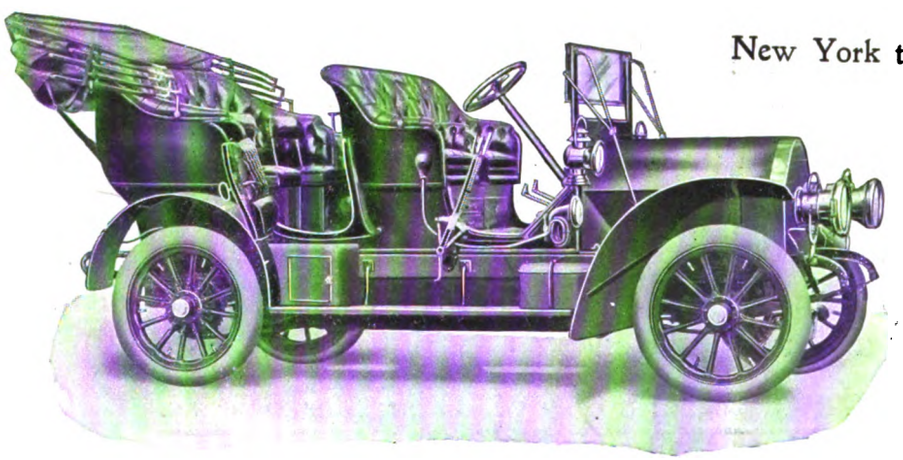
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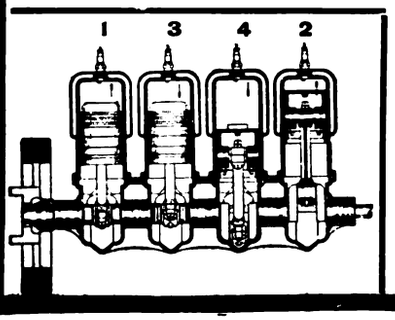
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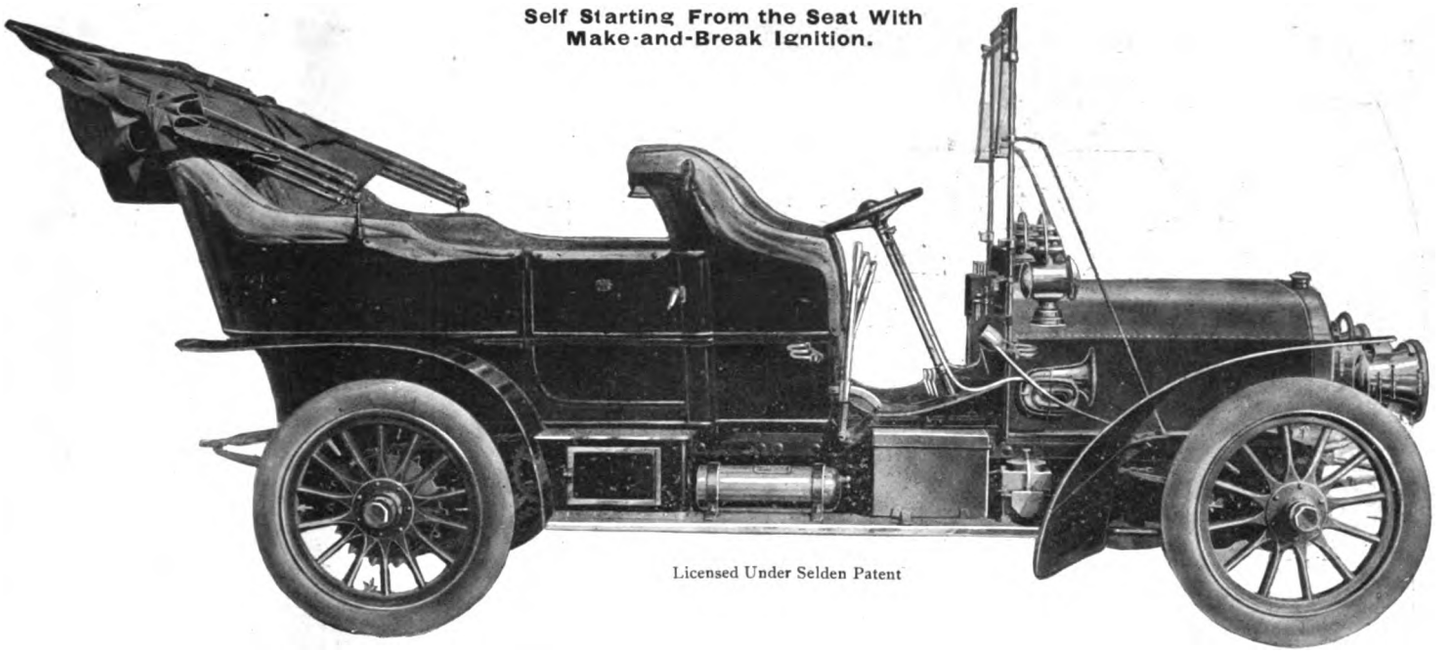
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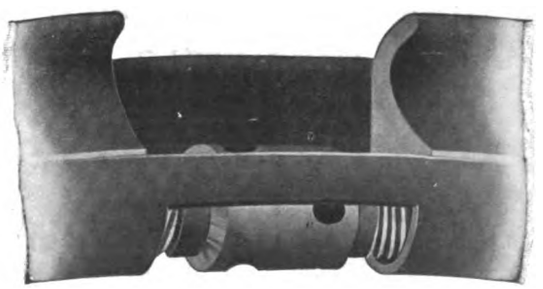
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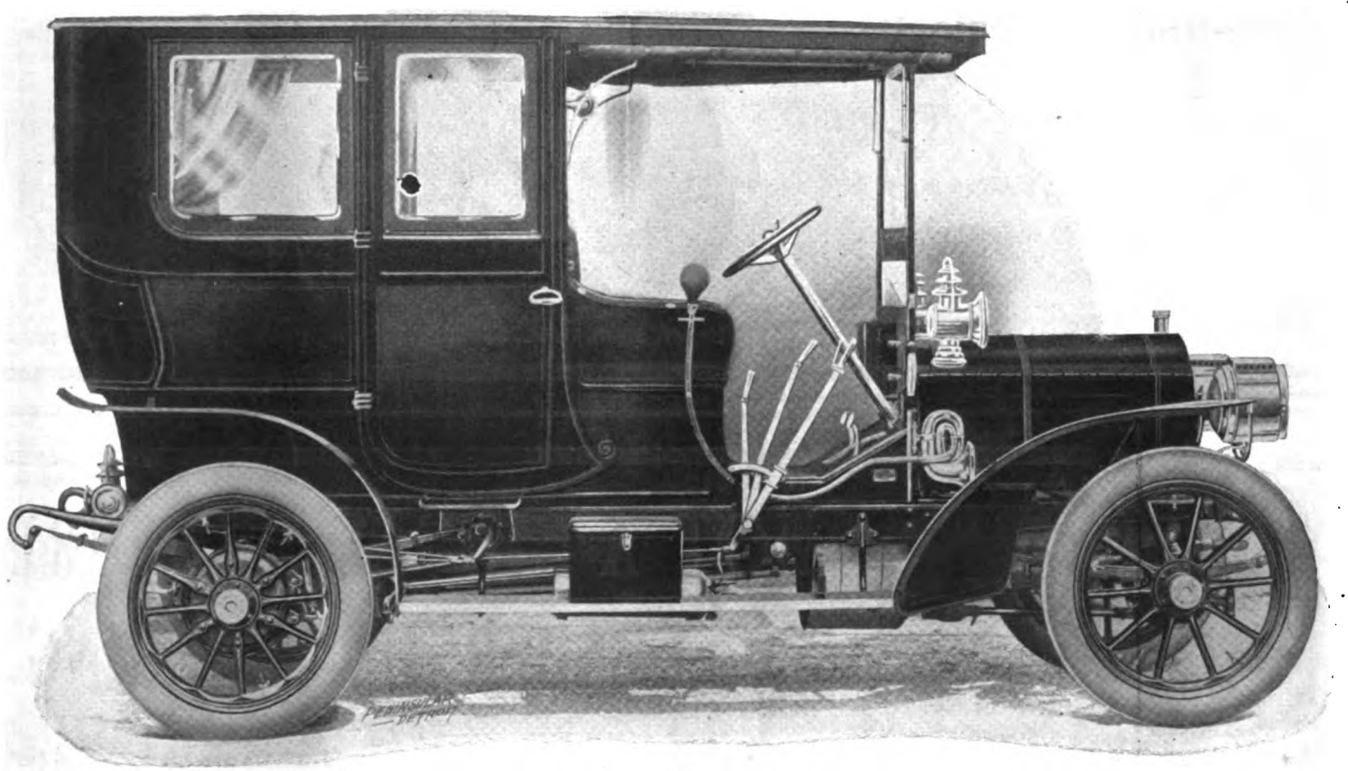
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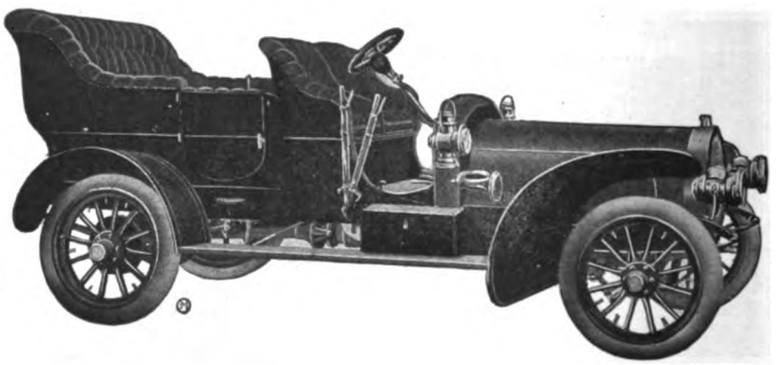
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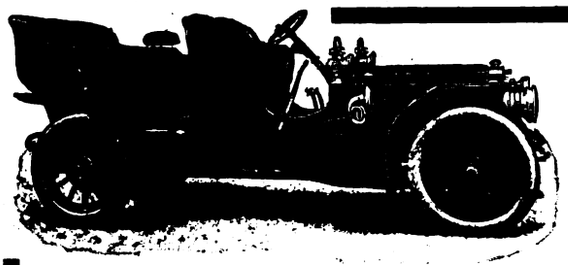
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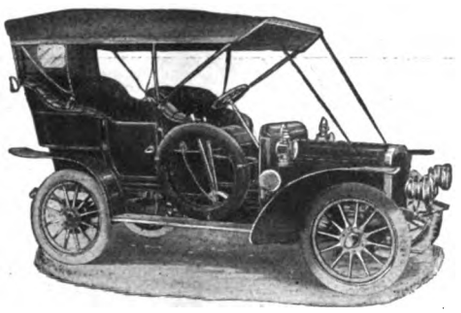
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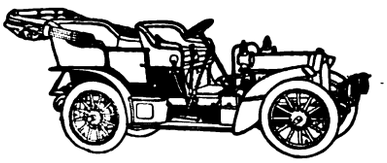
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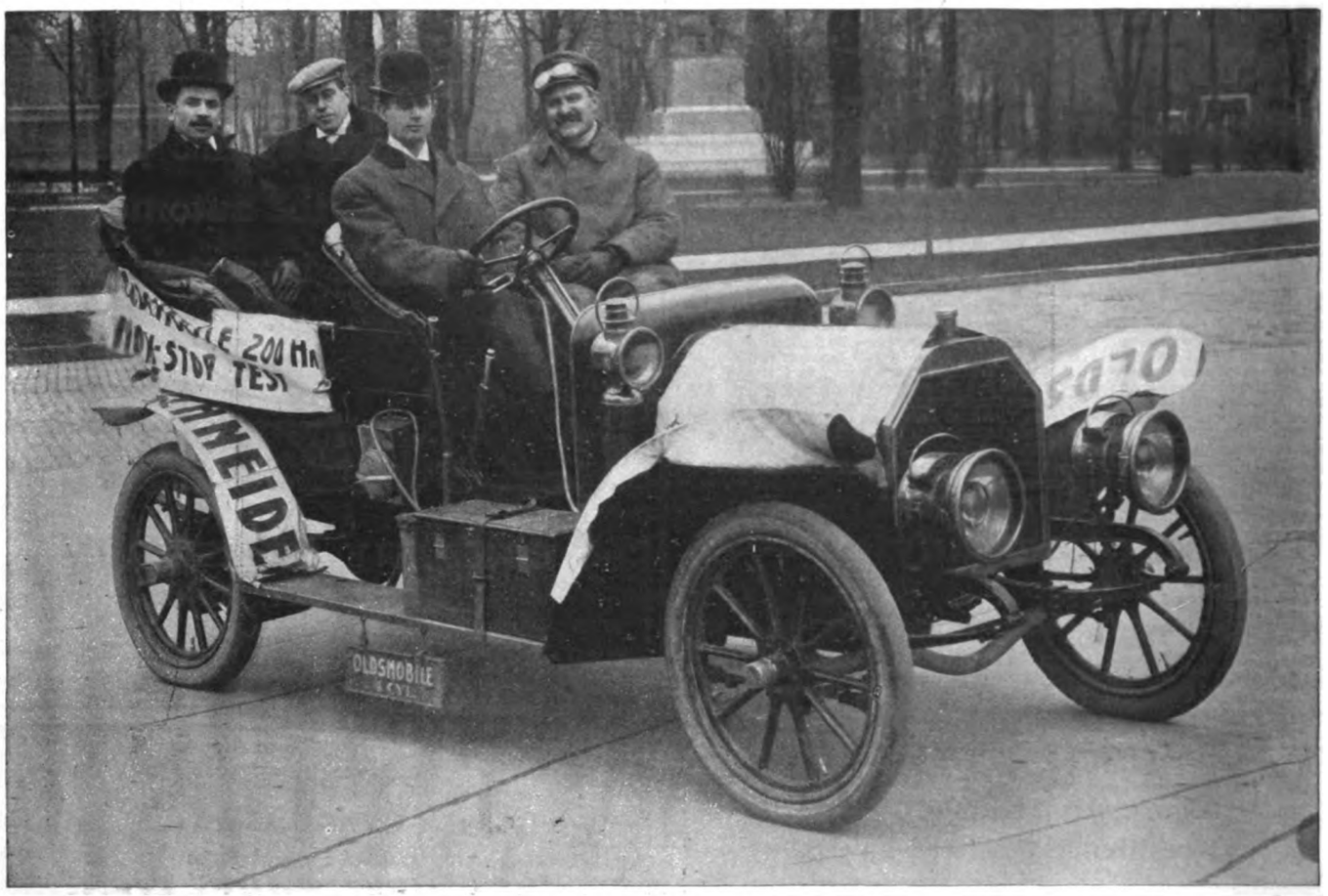
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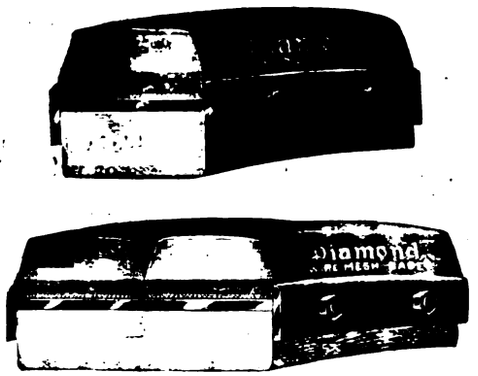
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Removes that ever-present terror of Punctures. You or anyone can remove a tire and put it back in 60 seconds by the watch

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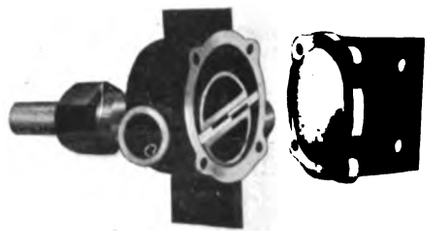
Come to the Factory or spend a few minutes at any of the following Branch Stores, and see how easy it is done by doing it yourself

Boston, 261 Dartmouth St.
New York, cor. Sixty-fourth St. and Broadway.
Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
Buffalo, 719 Main St.
Denver, 220 Sixteenth St.
Detroit, 242 Jefferson Ave.

The Goodyear Tire and Rubber Co., Grove Street, Akron, O.

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HAYNES COOLING SYSTEM



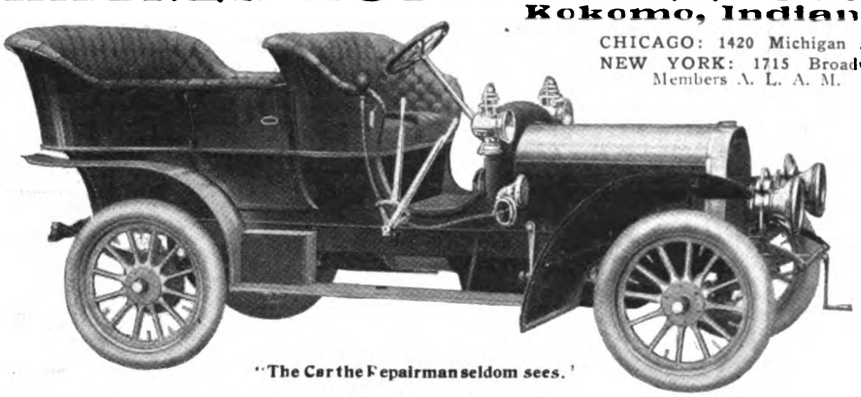
UNUSUAL attention has been given to the cooling of Models 'O' and 'R'—the 1906 Haynes cars—and unusual results have been obtained. On a 5000 mile journey not once did either of these engines get hot enough to cause a single explosion after the spark was shut off.

Two fans, one back of raditor, the other in fly wheel, sweep the air through the radiator and over the engine, and the very large volume of water around the valves also greatly assists in cooling. The water pump is so simply and strongly constructed that it cannot get out of order. In spite of severe freezing weather on the January trip of Model 'R' from New York to Chicago—over 1100 miles—there was no trouble whatever with cooling system, nor was any "anti-freezing compound" used.

The Haynes is the highest-powered Shaft-driven Car built. In requesting catalogue, for prompt attention address Desk, D 17.

HAYNES AUTOMOBILE CO.
Kokomo, Indiana.

CHICAGO: 1420 Michigan Ave
NEW YORK: 1715 Broadway.
Members A. L. A. M.



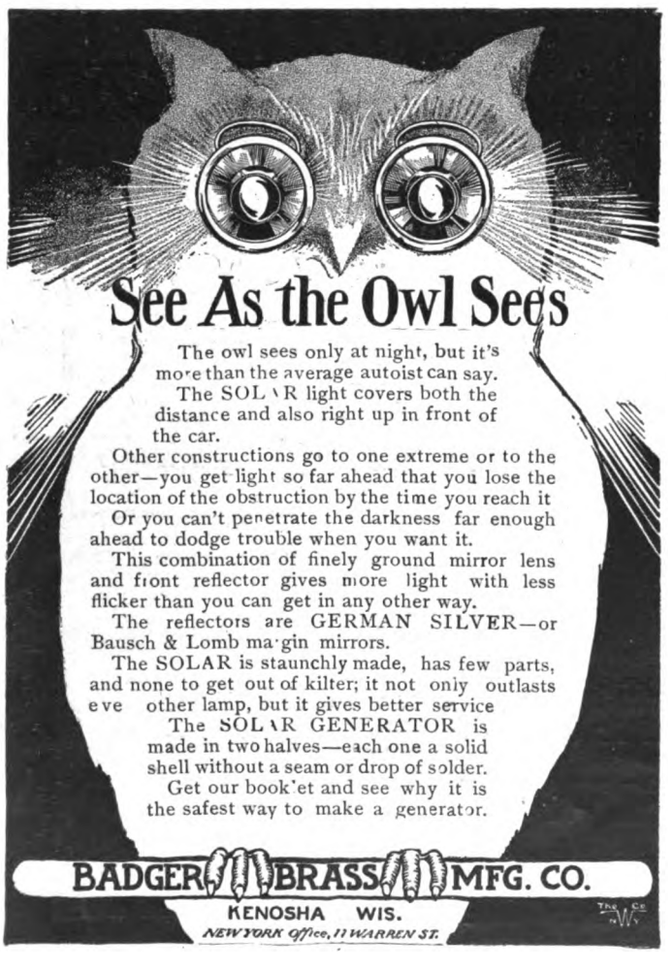
"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5¼x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,500 f. o. b. Kokomo. Full equipment.

Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs 4¼x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.



See As the Owl Sees

The owl sees only at night, but it's more than the average autoist can say.

The SOLAR light covers both the distance and also right up in front of the car.

Other constructions go to one extreme or to the other—you get light so far ahead that you lose the location of the obstruction by the time you reach it

Or you can't penetrate the darkness far enough ahead to dodge trouble when you want it.

This combination of finely ground mirror lens and front reflector gives more light with less flicker than you can get in any other way.

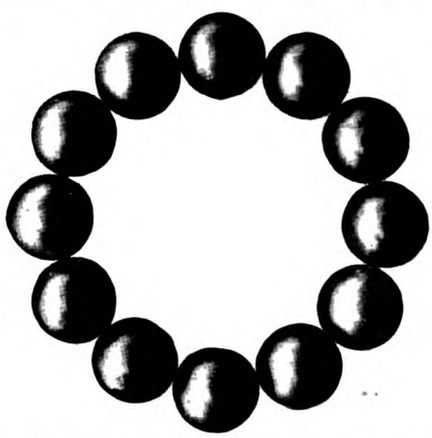
The reflectors are GERMAN SILVER—or Bausch & Lomb margin mirrors.

The SOLAR is staunchly made, has few parts, and none to get out of kilter; it not only outlasts eve other lamp, but it gives better service

The SOLAR GENERATOR is made in two halves—each one a solid shell without a seam or drop of solder.

Get our booklet and see why it is the safest way to make a generator.

BADGER BRASS MFG. CO.
KENOSHA WIS.
NEW YORK Office, 11 WARREN ST.



ANNOUNCEMENT

"Standard Alloy Steel Balls"

made of ALLOY STEEL, now ready for delivery.

Double Crushing Strength Ordinary Balls

¾-inch Crucible steel balls' crushing strength, 50,000 to 56,000 lbs.
¾-inch "STANDARD ALLOY" steel balls, 95,00 to 100,000 lbs.
Guaranteed true to .0001 inch in diameter and sphericity.
Prices quoted on request.

Standard Roller Bearing Co.
48th and Girard Avenue, - - PHILADELPHIA

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G & J Motor Car Tires

Made in the shape they assume in service, relieving strain on the fabric.

NO LOOSE COVERS

Fitted with a flap, giving a perfect seating for the inner tube.

NO PINCHED TUBES

Made with a raised tread, giving added wearing surface.

Why not buy THE BEST TIRES when they cost no more than others.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

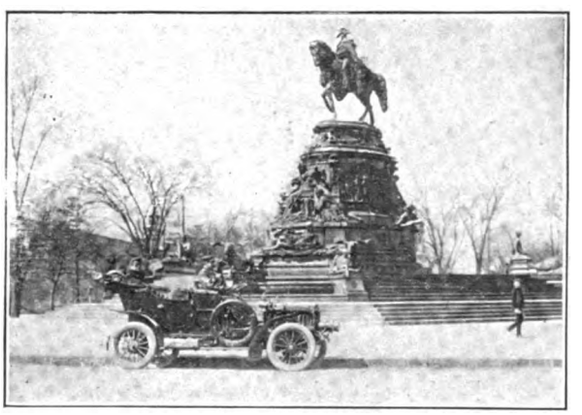
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The Incomparable WHITE

The Car for Service.



"WHAT PEOPLE SAY ABOUT THE WHITE STEAM CAR."

The above is the title of a booklet which has just been issued, containing some two score letters from White owners, relating their experiences with their machines. These letters describe, much more eloquently than we could ourselves, the qualities which have made the White the most popular car in the country. A few quotations follow:

"Nothing ever happens to it."
"Do not spend in care to exceed one hour per week."
"Convinced that the White is the safest on the market."
"Repair expenses for 12,000 miles, $17.25."
"I have forgotten what automobile troubles are."
"The White principle is a stroke of genius."
"Quickly learned to use it without needing a chauffeur."
"Fit to go anywhere and surmount anything."

A copy of this instructive booklet will be sent on request.

WHITE SEWING MACHINE COMPANY
CLEVELAND, OHIO

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POPE
Waverley
ELECTRIC
AUTOMOBILES

Pope-Waverley Station Wagon.

Model 30. Price, $2,250

An ideal car for suburban service. All windows can be lowered. Front window and back of front seat removable. We furnish a hinged lazy back seat to take the place of upholstered back, permitting free circulation of air for summer use.

EQUIPPED WITH HEAVY MOTOR OF NEW DESIGN.

Brakes: two foot and one electric.

We make **Runabouts, Surreys, Stanhopes, Coupes, Station and Delivery Wagons.**

Trucks Built on Specifications of Purchaser.

Write for Catalogue.



POPE MOTOR CAR CO.

Waverley Dep't.

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Members A. L. A. M.

The

Jones Speedometer

won the

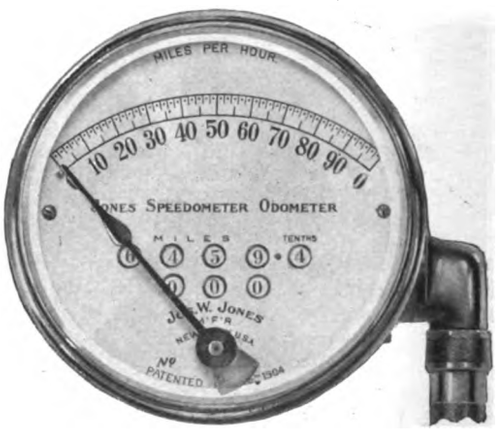
Gold Medal

in the 2,000 mile English Reliability Test for Speed Indicators, held under the auspices of the British Automobile Club. The Jones Speedometer was the only American manufactured instrument to score a perfect record, and the only instrument in the contest to go through the severe test ***without adjustment.***

Jones Speedometer

(Mfg. by Jos. W. Jones,)

132 West 32d Street, - - New York.



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The "Maxwell"

Perfectly Simple Simply Perfect



20 H. P. Touring Car, $1,450

WHAT DO THE OWNERS SAY?

That is the best question to ask, when selecting an automobile.
Maxwell owners are the Maxwell's best advertisements.
The contentment and satisfaction that stand out all over them is the most "catching" thing in the motor world.
Just talk to one of them and get the "sunny side" of the automobile question.

Multiple Disc Clutch. Three-point Suspension of Motor and Transmission (Unit). Metal Bodies. No Noise. No Vibration.

There is a book called "Facts and Testimony" that gives the "owners' side" of the automobile question. You get it when you send for our catalogue.

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MAXWELL-BRISCOE MOTOR COMPANY

Members American Motor Car Manufacturers' Association.

CHICAGO, ILL. FACTORIES: PAWTUCKET, R. I.

Main Plant: TARRYTOWN, N. Y.

BRANCHES:

Maxwell-Briscoe, Inc., New York, N. Y.
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Fisher Automobile Co., Indianapolis, Ind.
Morrison-Tyler Motor Co., Boston, Mass.
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10 H. P. Tourabout, $780

TIRES 25% OFF

They came our way—a lot of

American-Made Clincher "Seconds"

and we bought 'em.

WHILE THEY LAST

we will sell them at

25% OFF 1906 LIST PRICES.

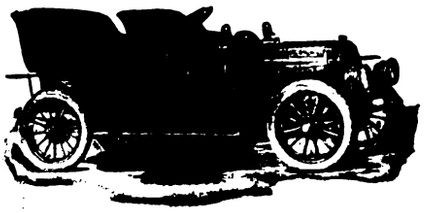
The Tires are not the output of any doubtful factory but are product of one of the plants in the American Tire Association.

SPEAK QUICKLY. IT'S THE CHANCE OF THE SEASON.

CHAS. E. MILLER, 97-99-101 Reade St., New York, U. S. A.

BRANCHES: New York City—924 Eighth Ave.
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WHY IS THE

ROYAL TOURIST

FAMOUS?

ASK AN OWNER.

ROYAL

Model G. $3500.00 40 H. P.

THE ROYAL MOTOR CAR CO.

leveland, Ohio.

AGENTS: C. A. DUERR & CO., New York, N. Y.; G. J. DUNHAM, Boston, Mass.; THE McDUFFEE AUTOMOBILE CO., Chicago, Ill.; G. W. CAPLIN, Minneapolis, Minn.; AUTOMOBILE & SUPPLY CO., Lim., Toronto, Ont.; MOTOR SHOP, Philadelphia, Pa.; REYBURN MOTOR CAR CO., St. Louis, Mo.; STANDARD AUTOMOBILE CO., Pittsburg, Pa.; AMOS-PIERCE AUTO CO., Syracuse, N. Y.; SCHOEFFEL CO., Rochester, N. Y.; ROYAL MOTOR CAR AGENCY, San Francisco, Cal.
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All there is to Prest-O-Lite



A TANK OF GAS—A KEY TO TURN IT ON—A MATCH TO LIGHT IT.

Prest-O-Lite gas is generated in advance, purified, cleaned, cooled, dried and condensed in tanks so it is easy to handle, easy to carry, and always ready for use.

Prest-O-Lite is compressed so you may regulate the pressure to suit yourself. It always gives even, steady, brilliant light.

When the gas in a Prest-O-Lite tank gives out, you get a new tank ready full, for the price of re-charging. Five minutes is enough time for replacing and—there you are, with light enough for as many hours as your tank holds cubic feet of gas (large ones 70 cubic feet, small ones 40).

Write to-day for our book "Ready Made Gas for Auto Lights." It tells how and why Prest-O-Lite does away with all the evils of the old fashioned generator method of making light for a motor car.

Your name and address on a post card mailed to us now will bring you the book at once post paid.

The Prest-o-Lite Co.,

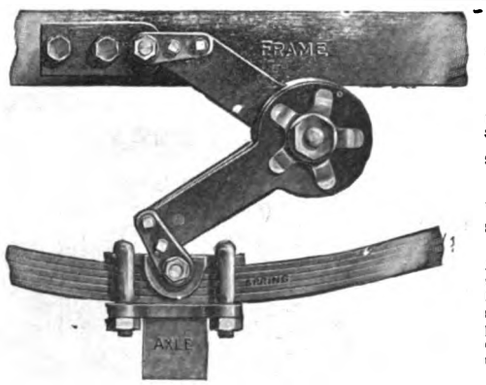
Department 169, Indianapolis, Ind.

Over 400 Supply Stations—one in each important city of the United States. Ask for list.

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TRUFFAULT-HARTFORD SHOCK ABSORBER

TRADE MARK



Increases the speed and prevents lost traction.

Obviates the necessity of slowing down for obstructions.

Absolutely prevents breaking of springs.

When 95% of all Shock Absorbers in use are Truffault-Hartford, why should you try experiments on principles discarded by us?

Self adjusting—Requires no attention. Makes the car ride like a baby carriage. Wears longest.

Adopted by the Pierce Great Arrow, Locomobile, Matheson, Richard-Brasier, Peugeot, Napier, Gobron-Brillié, Studebaker, Aerocar.

Cars under 1500 lbs. $40 (four suspensions)

Cars over 1500 lbs. $60 (four suspensions)

WARNING

We are the owners of fundamental patents entirely covering every practicable form of frictional retarding devices for vehicle springs, and hereby warn the trade from handling any infringing device that may be offered for sale. We also warn the trade against the use of the term "**Shock Absorber**" which is our Trade Mark.

HARTFORD SUSPENSION COMPANY

E. V. Hartford, Pres. **67 Vestry Street, New York.**

WE ARE SOLE AMERICAN AGENTS FOR THE CELEBRATED
COBRON-BRILLIÉ,
"THE FINEST AUTOMOBILE IN THE WORLD."

SPLITDORF COILS

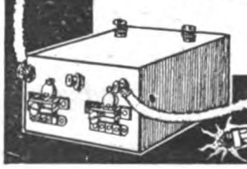
THE STANDARD OF THE WORLD

Avoid any chance of trouble by seeing that your coil bears the name SPLITDORF.

C. F. SPLITDORF

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KNOX AUTOMOBILE COMPANY

ADDRESS ALL COMMUNICATIONS TO THE COMPANY

Springfield, Mass. May 21, 1906.

J. M. Gilbert, Sales Mgr.,
Firestone Tire & Rubber Co.,
Akron, Ohio.

Dear Sir:

I have directed our purchasing agent to place with you an order for a lot of 3 1/2 and 4" tires for our D-6 commercial cars, capacity 3000 pounds. The experience that we have had with solid tires on hundreds of commercial cars has convinced us that you have secured the happy combination of resiliency and durability that has been so difficult to obtain.

Trusting that you may be able to furnish these tires in time for our requirements, we remain,

Yours very truly,

Knox Automobile Company.

E H C/K.

P. S. We enclose the order.

E. H. Cutler
President.

"THE HAPPY COMBINATION"

in Solid Tires for Motor Trucks and Commercial Vehicles:

FIRESTONE { RESILIENCY / DURABILITY

Read what one of the oldest established and largest makers of gasoline commercial cars in the United States thinks of FIRESTONE TIRES.

The largest users select FIRESTONE SIDE-WIRE TIRES. WHY? Experience proves them the most desirable—THEY ARE NO EXPERIMENT. They can't creep or come off the rim. They are the standard solid tires the world over.

Then why not "Firestone?"

FIRESTONE TIRE & RUBBER CO.

AKRON, - - OHIO.

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Detroit, 240 Jefferson Ave.

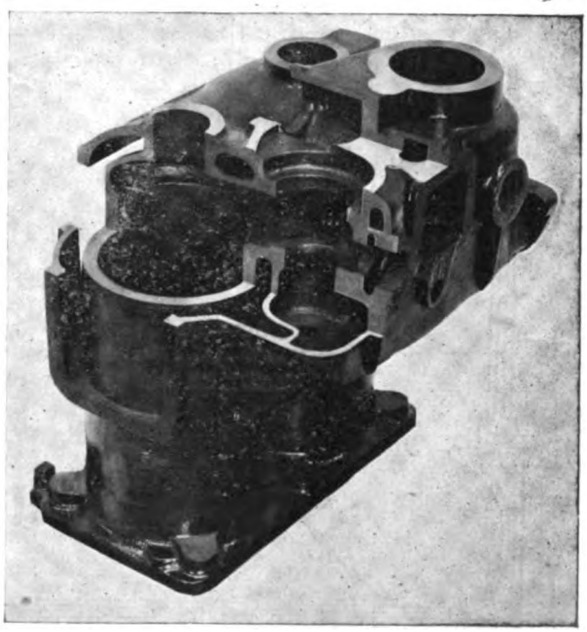
Cylinder Castings.

DON'T EXPERIMENT.

Send us your order for cylinders and secure all the advantages gained in doing business with the foundry which has the experience and "know how."

The patronage of the leading manufacturers is our best endorsement.

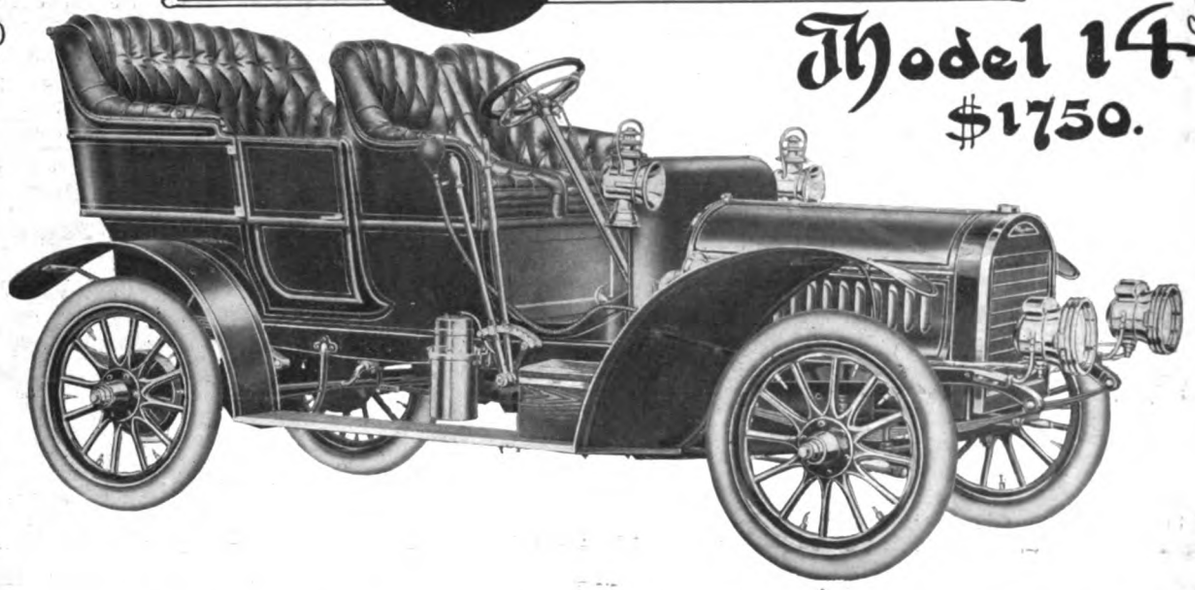
THE MANUFACTURERS FOUNDRY CO., Waterbury, Conn.



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Rambler

Model 14
$1750.



A medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

MAIN OFFICE AND FACTORY: KENOSHA, WIS.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, June 7, 1906. No. 1

N. A. A. M. MIDSUMMER SESSION

Elects Metzger Secretary and Admits Two New Members, then Votes to Adjourn Until September.

There was little doing at the regular meeting of the executive committee of the National Association of Automobile Manufacturers, which was held yesterday in the New York offices of the organization, in fact, filling the vacancies caused by the resignation of Percy Owen occupied most of the time.

Owen, who formerly represented the Winton Motor Carriage Co., and who is now general Eastern sales manager for the Aerocar Co., was secretary of the N. A. A. M. and also a member of the committees on membership and auditing. W. E. Metzger, of the Cadillac Motor Car Co., was chosen to fill the vacant secretaryship and the voids on the two committees were filled by the appointment of Thomas Henderson and C. C. Hildebrand, respectively. Mr. Henderson is the new representative of the Winton interests in the N. A. A. M.. He took his seat at yesterday's session.

Two additions were made to the roll, the Lozier Motor Co. and the Garford Mfg. Co., ing admitted to membership.

The Contest Committee submitted several suggestions regarding the conduct of the Glidden contest which have been forwarded to the American Automobile Association, but the nature of them was not disclosed. It is understood, however, that they have to do with the method of scoring points.

President Cutler occupied the chair, the other members present being A. L. Pope, George W. Bennett, S. D. Waldon, Charles Clifton, W. R. Innis, Windsor T. White, M. L. Goss, M. J. Budlong, S. T. Davis, W. E. Metzger, Thomas Henderson and C. C. Hildebrand.

No meetings will be held in July and August. When the committee adjourned it adjourned until September.

Arranging the Autocar Affairs.

A. W. Whiting will not, after all, sever connection with the Autocar Co. He tendered his resignation as sales manager, as the Motor World stated last week, but it was not accepted and he has "signed up" to continue in that office. On Tuesday last there was an important meeting at the factory in Ardmore, Pa., of all the Autocar's principal agents, at which matters pertaining to the 1907 product and business were discussed at length; even the San Francisco agent was among those in attendance. Incidentally, the strike which tied up the factory for several weeks has been settled.

Big Glass Company Becomes Interested.

Macbeth-Evans Glass Co., Pittsburg, Pa., makers of celebrated lamp chimneys, are going into the automobile business. At least, the company will indirectly cut a figure in the accessory branch of the trade for it will manufacture lenses for automobile lamps. To provide for this new line the company has secured a large factory adjoining its present site on the Monongahela river, which it is equipping with machinery to polish lenses.

Wesley out of Electric Vehicle.

George W. Wesley, superintendent of the Electric Vehicle Co., Hartford, Conn., has resigned that position and in all probability will be succeeded by D. W. Pell. The latter was for a long time connected with the Westinghouse establishment in Pittsburg, but for the past two months has been located at Hartford, as assistant to President Budlong, of the E. V. Co.

Duquesne to Move to Erie.

Because Jamestown (N. Y.) business men would not advance enough money to allow it to expand, the Duquesne Motor Car Co., has decided to move to Erie, Pa. The company will be reorganized with $300,000 capital. M. Liebel, Jr., and Edward Heuer, both of Erie, are said to be backing the enterprise.

W. E. Fewell, Buffalo manager of the Goodyear Tire & Rubber Co., has resigned to accept a position in the sales department of the Blomstrom Motor Company, of Detroit, Mich.

RUBBER GOODS GETS MIDGLEY

Unexpectedly Acquires Columbus Rim Plant—Dissatisfied Stockholders then Apply for Receiver.

The Midgley Mfg. Co., Columbus, Ohio, is now the possession of the Rubber Goods Mfg. Co. The negotiations were conducted so quietly that the purchase of the property will prove in the nature of a widespread surprise, nothing of the sort being even remotely suspected as being probable.

Although the Rubber Goods Co. acquired a safe majority of the capital stock of the Midgley Mfg. Co., the deal was not agreeable to all of the Midgley shareholders and officials, the immediate result being that one of them applied to the courts for the appointment of a receiver. As there is no question regarding the concern's solvency, the receivership proceedings will be, of course, vigorously opposed.

The Midgley business will not be wholly strange to the Rubber Goods interests, its founder, Thomas Midgley, having only recently become president of the Hartford Rubber Works Co., one of the Rubber Goods' units. The Midgley plant first produced steel wheels, but latterly has been making also the Hartford universal rim and also rims for the Dunlop and for clincher tires. John C. Spiers, former superintendent of the Autocar Co., was installed as general manager of the Midgley Co. a few months since, but it is stated that the sale of the property will bring about a change in that position, among others.

Decauville to Become Americanized.

The Decauville Automobile Co., New York, is making ready to shed its foreign title. It has filed the required legal notice that on July 10 it will apply for authority to change its corporate name to Wyckoff, Church & Partridge, those gentlemen being the principals in the concern. Like so many other importers, the Decauville Co., last year, found it advisable to add the agency for an American car to its account and the pending change of name is supposed to grow out of that fact.

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Reber Evolves a New Body.

Eleven men working one year ago; one hundred and forty now, eloquently tells its own story. It is the story of the Reading Metal Body Co., then in a little shop at Reading, Pa., now in a large, well equipped factory at Fleetwood, Pa., twelve miles distant.

"We learned how to make metal bodies and made them as well as we knew how—though not half fast enough," was the explanation of James E. Reber, founder and head of the company, the last added with a smile at J. I. Brandenburg, his selling agent. As a matter of fact, the growth of the business is due almost to Mr. Reber, and in this his latest success he is simply "coming into his own" again.

One of Mr. Reber's most recent productions is an aluminum body for a famous New York patent attorney, to be fitted to a chassis with a 138-inch wheel base. There is but one other body in this country of equal size, of which George W. Perkins is the owner.

The new Reber body embodies a number of original features including a folding chauffeur's seat attached to the running board. The tonneau comfortably seats seven and the car altogether is designed to carry eleven people. However, despite its great length, it can be turned in an ordinary city street as the front is slightly cut under. It is interesting as a specimen of the body-builders' art and one that scarcely can fail to receive extended attention.

Heath is Turned Loose.

After six months of jail life, Howard Heath, president of the paper "International Automobile Co.," arrested on the charge of obtaining money under false pretences, is a free man. He walked out of the Elgin (Ill.) jail last week after the state's attorney's motion to dismiss the case had been granted. Herman Krueger, the complaining witness, is in South Dakota. It will be remembered Heath was trapped by detectives, after a long hunt in several states. Krueger alleged Heath had fleeced him out of several hundred dollars for stock in an automobile company that never existed.

To Build Engines in Waukesha.

The Wausheka Motor Co. has been organized in Waukesha, Wis., with $25,000 capital, with A. T Stebbins as president and Harry L. Horning as secretary-treasurer. The company has leased a large stone building on North street where it will make automobile engines and conduct a garage and repair shop.

California Dealers Select Leaders.

At the annual meeting and banquet of the Southern California Automobile Dealers' Association in Los Angeles, Cal., last week, the following officers for the year were elected: President, E. J. Smith; vice-president, Captain H. D. Ryus; treasurer, Leon T. Shettler.

The Week's Incorporations.

New York City, N. Y.—United Auto Co., under New York laws, with $25,000 capital; to deal in automobiles. Corporators—Lee Ephraim, Henry Ephraim and Isaac Katzer.

New York City, N. Y.—Cobe Automobile Co., under New York laws, with $5,000 capital. Corporators—A. J. Cobe, H. H. Cobe and H. G. Kosch, all of New York City.

Seattle, Wash.—Rainier Motor Co., under Washington laws, with $12,000 capital. Corporators—M. P. Benton, W. G. Norris and Edward P. Herald.

Augusta, Me.—Phoenix Motor Co., under Maine laws, with $10,000 capital; to maintain garage. Corporators—President L. J. Coleman, Gardiner, Me.; treasurer, W. S. Lee, Augusta, Me.

Buffalo, N. Y.—Harris Auto Machine Co., under New York laws, with $100,000 capital; to manufacture engines and appliances. Corporators—W. D. Chamberlain, B. W. Harris and D. A. Minard, all of Buffalo.

Concord, Mass.—Concord Motor Car Co., under Massachusetts laws, with $10,000 capital; to lease and operate automobiles, etc. Corporators—President, J. S. P. Alcott, Newton; treasurer, F. A. Pratt, Concord.

Hollis, Texas.—Gully Automobile Co., under Texas laws, with $1,000 capital; to operate an automobile stage line. Corporators—J. C. Gully, of Eldorado; R. J. Gully, Jr., and W. D. Gully, of Hollis.

Jersey City, N. J.—Vandegrift Automobile Co., under New Jersey laws, with $200,000 capital; to manufacture automobiles of all kinds. Corporators—Henry G. Morris, Pedro G. Salon and F. Rogers Donahue.

Norfolk, Va.—Asheville Automobile and Transit Co., under Virginia laws; to operate passenger and freight automobile line in Buncombe county. Corporators—D. G. Noland, et als.

Wausheka, Wis.—Wausheka Motor Co., under Wisconsin laws, with $25,000 capital; to make automobile engines and conduct garage. Corporators—H. L. Horning, Frederick Ahrens and A. T. Stebbins.

Boston, Mass.—Abell Speedometer Co., under Massachusetts laws, with $100,000 capital; to make speedometers. Corporators—R. Abell, president, Dorchester, Mass.; A. N. Frost, treasurer, Lawrence, Mass.

Kittery, Me.—Dragon Automobile Co., under Maine laws, with $550,000 capital; to make and sell automobiles and appliances Corporators—H. P. Knowlton, Malden, Mass.; A. F. Knowlton, Boston, Mass., and J. W. Hawes, Kittery.

Boston, Mass.—Boston Automobile Dealers' Association, under Massachusetts laws, with $5,000 capital; to promote the welfare of its members. Corporators—President, J. H. MacAlman, Somerville; treasurer, E. A. Gilmore, Chestnut Hill.

Affairs of the Hawkins Automobile and Gas Engine Co., of Houston, Texas, will now be wound up. Judge Waller T. Burns, in Federal court, last week, granted the final discharge in bankruptcy.

England's Imports Still Increasing.

During the month of April the imports of motor cars into England showed a marked increase over those of a year ago. In all, 591 cars, valued at $1,123,195, were brought in, together with $892,950 worth of parts, giving a total of $2,016,145, as against $1,469,515, and $1,012,495, for the months of April, 1905 and 1904, respectively. Indeed, the aggregate import figures for the first four months of 1906 show a growth of nearly half a million sterling. The exports, on the other hand, show a more sluggist growth. But 62 vehicles were shipped last month, giving a valuation of $118,225, with parts to the amount of $83,735, making a combined total of $201,960. This compares with the total amounts of $131,125 in April, 1905. For the first four months, the total exports have shown a growth of $455,600, or an absolute valuation of $997,850.

Ford Experimenting with Gearless Car.

Automobile appendicitis is the latest term for anything wrong with the gear box of a car, which has accordingly been dubbed the machine's vermiform appendix. Henry Ford is said to be responsible for its application, which came about in connection with his experiments on the subject of a gearless car made possible by the use of a six-cylinder engine. As ordinarily designed, the six-cylinder Ford is provided with two speeds forward and it is now the object of its creator to dispense with gearing entirely. To try out the new "gearless" Ford it will be run from Detroit to Chicago. This will be "on the high" all the way because the car will have no other.

Winslow Talks of Kalamazoo Factory.

A. J. Winslow is authority for the statement that Kalamazoo will have an automobile factory. He says he has been in communication with a Douglas Gordon, of New York City, who has been interested in the automobile business in Richmond, Va., and with several Chicago parties. Winslow says, he will build a two or three-story factory, 200x40 feet, near the South Haven division of the Michigan Central railroad. Other details are not forthcoming.

Strout Comes East Again.

George H. Strout, who about a year since left New York and became president of the Western Automobile Co., St. Paul, has disposed of his interests in that concern and is again in the East. He states that he is considering offers from three automobile factories and is also considering going into business in New York City.

Robertson Becomes Sales Manager.

E. E. Robertson has been appointed general sales manager of the Hartford Suspension Company. He will also look after the sales of the Gobron Brille cars, for which the Hartford Company is the American agent.

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AS TO ALUMINUM

How it was Developed from a Baby's Rattle to its Present Importance.

So common a factor in the arts has aluminum become, that it is now difficult to realize that only fifteen short years ago its use was considered a novelty, and its manufacture regarded as one of the industrial triumphs of the day. And indeed, its prevalence in motor car construction has granted it that familiarity which breeds servile contempt, and the user seldom stops to reflect what it has done for the automobile industry, and, corelatively, what the industry itself has accomplished in forcing the development of a subsidiary art which, but for its influence, might have struggled along for many years without reaching anything like its present magnitude and importance.

One of the most common elements in the world, in its elementary form, and one which has ben recognized in one form or another for hundreds of years—ever since the dark ages in fact, its existence in metallic form not occurring in nature—the inevitable consequence was that as a metal, it should not be discovered until chemical and physical researches had delved into almost every one of Nature's secrets and had turned every stone in the world with methodical and persistent curiosity. Not until 1804 then, was aluminum produced even in the form of an alloy containing sufficiently distinctive qualities to be recognizable as a new metal. Its discovery at that time is credited to Sir Humphrey Davy, who was responsible for its name, and who in some manner succeeded in evolving a white metal of sufficiently startling qualities to attract his attention, and from which he was enabled to enunciate for the first time those properties which have since come to differentiate it from all else in the mechanical and metalurgical world, and earn for it its position in the manufactures.

Twenty-three years later, Frederick Wohler, Professor of Chemistry at Gottingen, made the discovery of pure aluminum, it being evident that Davey's results had only served to secure him an iron-aluminum alloy which he could not segregate. Perhaps an equal interval then elapsed before Henri Saint-Claire Deville, a Parisian, after a series of discouraging struggles sufficient to fill a score or two of pages of pathetic history of tireless industry rewarded with meagre encouragement and abject failure by turns, laid the real foundation of the aluminum industry which to-day has become so very important.

As in the case of many another early experimenter, Deville's work was largely carried on under royal patronage, that ticklish boundary between the headsman and reeking opulance. Napoleon III, his patron, cherished a fond dream of clothing his troops in aluminum armor, and owing to this, Deville was allowed to continue his researches year after year. It is recorded that the first article ever made of pure aluminum was a baby's rattle intended for the little prince imperial, while at the same time, his majesty was presented with a medal pressed from the same precious metal. It was not until 1854 that he succeeded in purifying the metal completely and studying its qualities in the absolute for the first time.

Deville's method, however, was an expensive and difficult one, and so for many years aluminum continued to be though no longer a rare, yet a very precious metal and one little adapted to the mechanical arts. As has been stated, its production in quantities and at costs which render it serviceable to the whole world did not come until somewhere about 1890. Since then, its use has constantly been increasing, and what is more important, its action in alloy with other metals, and the properties of the resulting compounds have reached their present state within that brief interval.

As is well known, the most successful materials of construction are those which rather than being independent elements purified and developed in their integrity, are blended with others to secure the required properties for any given need. The value of any such material also, depends hardly more upon the components, than upon the manner in which they are blended, and the treatment they receive in the formative process. Iron, for instance, is seldom if ever used in the pure state except experimentally, and so aluminum is applied to the arts, only in the form of alloys. Of these two great groups are found, the one containing an overwhelming proportion of the metal itself, and being commonly called aluminum without further qualification, and the other being known by its composition under the name of aluminum bronze, and other compound specifications.

The first group of alloys, which take their composition according to the purpose which they are intended to serve and also to a certain extent in accordance with the nature of the processes of manufacture which they must undergo in preparation, are used in cast and sheet form for such parts of the motor car as gear boxes, engine beds, frames and carburetter parts, while the second are employed chiefly as bearing metals for journals, and also to a certain extent in parts for which the tenacity of the alloy makes it especially fit. In this connection, and by way of differentiating between the so-called aluminum, and the so-called aluminum alloys, it is noteworthy that in the first case, the metals which answer to the description of aluminum, pure and simple, are remarkable for their lightness among other properties, while the second group of alloys are uniformly heavy.

The essential characteristics of the metal which have given it the great vogue which it maintains so well, are its light weight, it being bulk for bulk, but little over a third as heavy as wrought iron; its freedom from corrosion under atmospheric conditions; its maleability and ductility; its strength, which under tension, is about the same as that of cast iron, of the same section; and the readiness with which it lends itself to the casting process. This latter point was not apparent at the first, it may be said, but is the development of years of study in the art of mixing, moulding and pouring. With a complete understanding of these three elements of the founder's art, however, it has proven itself to be one of the most facile metals of the day.

How far the motor car industry could have progressed without the aid of this useful product of the common clay, it is useless to conjecture, yet it is safe to say that its development to its present state has been fostered by and secured through its use to an extent which is practically incalculable. Certainly, the car of to-day would be as useless without aluminum in its mechanism as it would were it to be deprived of its iron or steel components, and such being the case, the metal well may be regarded as equally essential with them.

Whitney to Build Big Plant.

Evidence of the prosperity that came so bounteously to the Whitney Mfg. Co., Hartford, Conn., is about to assume form in that city. The form and size will be of impressive proportions—a huge factory of modern reinforced concrete fireproof construction, 228 by 61 feet and four stories in height; in addition, there will be a single story extension about 64 feet square.

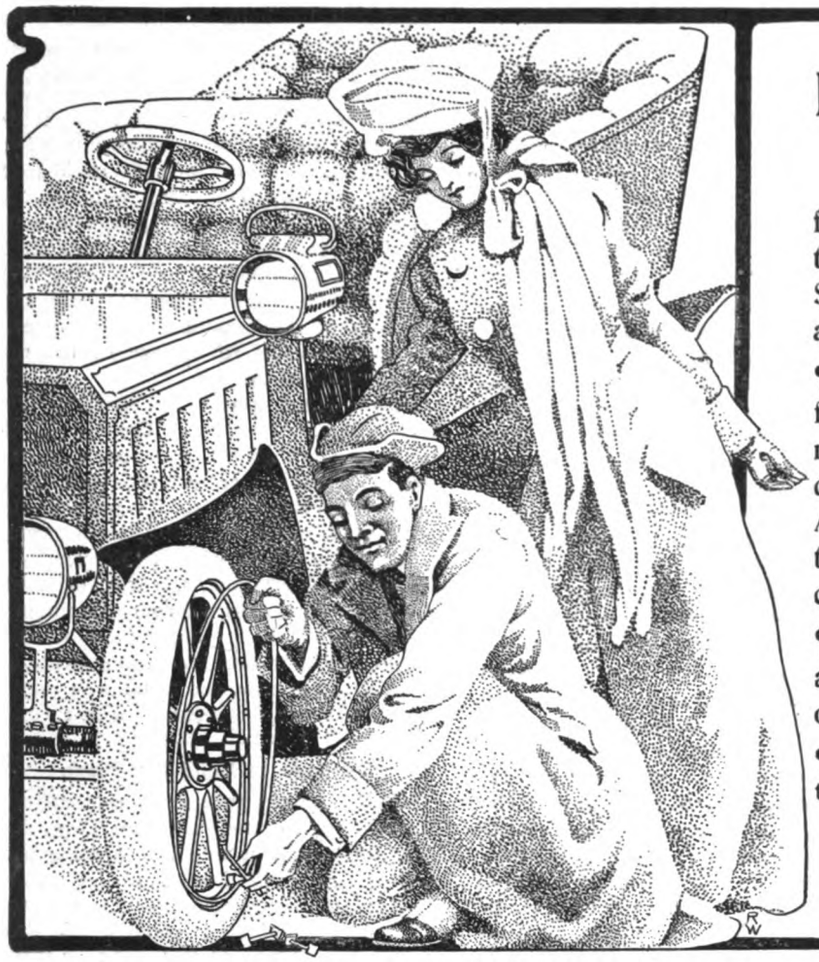
The eight acre site on which this new plant will be erected is directly south of the Hartford Rubber Works, and embraces Hamilton and Bartholemew streets. Building operations will be commenced immediately and it is expected that the structure will be ready for occupancy on or before November 1st. In the designing of this new Whitney plant, the elevators, staircases and receiving and shipping facilities have all been laid out with an eye to the economical handling of the Whitney product; the comfort of the workmen, also, has not been overlooked. Not merely lockers and wash rooms, but reading and lunch rooms and even a smoking room will be provided.

Darracq and Serpollet in a Deal.

Under mutual agreement between the well known Darracq and Serpollet companies, a new $2,500,000 company has been formed bearing the joint name of the two firms, which is to engage in the making of steam omnibuses. Mr. Serpollet, the designer of the steam cars which bear his name, has agreed to enter the employ of the new concern for a period of ten years.

During 1905, Belgium's automobile exports amounted to 508 complete cars valued at $755,087, according to a consular report.

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Fisk Tires are Remarkable

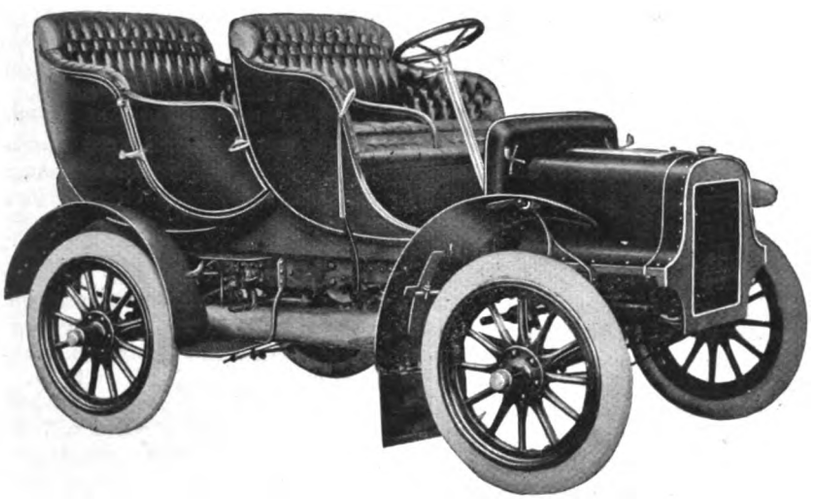
for the Simplicity and Ease with which they can be repaired, for their Positively Safe Rim Attachment, their Comfort, and their Long Service Qualities.

¶ Fisks cannot roll on the rim. It is so firmly secured that there is absolutely no chance for it to creep—as other tires do. Its inner tube cannot get pinched. All the air in a Fisk is entirely above the rim, making the one perfect wheel cushion.

¶ They are now recognized everywhere as The Standard for Sterling Excellence of Design, Material and Construction.

¶ We would like to send you an article on the subject of different tire constructions.

THE FISK RUBBER COMPANY,
Chicopee, Falls, Mass.



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Giving the Garageman his Due.

Regardless of how much it may be ridiculed as the idle dream of the joke monger or the howl of a few disgruntled individuals who plunged beyond their depth in taking up automobiling, there is an impression prevalent that the chief reason for the existence of the garageman is to bleed his customers for repairs. The public, generally, which includes a large portion of the motoring fraternity as well, is possessed of the idea that anything in the nature of repairs to a car is bound to be an expensive process and experience has borne this out in so many instances that there would appear to be considerable foundation for the belief. At any rate it is solidly grounded and there seems to be no escaping the fact that the garage keeper has been placed in the same class as the plumber where the size of his bills is concerned, right from the very outset.

It must be generally conceded that the cost of repairing a car is disproportionate to that of other classes of machinery in everyday use, and probably this may be accounted for on the same ground that repairs to a yacht cost twice as much as those to a merchant vessel. One depends upon how much the owner is willing to pay and the other upon a purely competitive business basis. The natural inference is that a large part of the price charged for repairs consists of what is most expressively represented by the vernacular term of "velvet." It is unearned increment so to speak, and the reputation for levying tribute to an extent that includes a generous proportion of velvet for even the most trivial attention to a car has placed the garage keeper in the same category with the maker of wiped joints and repairer of frozen pipes.

As in the case of every impression that becomes current, there is some truth behind this wholesale accusation of the garage keeper. He is not entirely blameless by any means as many well authenticated cases make only too manifest. In numerous instances, these have been the work of members of that class of ne'er do wells who are attracted by any new industry. In all probability the latter are responsible for the greater part of the ill-repute attaching to the business as a whole. The fact that it has fallen heir to a reputation that is more or less unsavory cannot be gotten away from; it exists and seems to have come to stay.

But there is another side to the question that calls for consideration. In the first place, the garage keeper has been saddled with the sins of omission and commission of the maker. The repairman suffers for every one of the builders' errors, for he, and he alone, has to make them right; in some instances keeping such cars in repair almost means rebuilding them. Then again, and this lies at the root of most of the trouble, the average owner who complains has little or no realization of the amount of time required to get at the trivial little job which piles up such a bill for mechanics' hours at 75 cents per. More often than not the car is run into the garage simply with instructions to put it in order and in the majority of such cases the actual repairing done is a matter of totally secondary importance compared with the bill for wages incurred in the discovery of the trouble.

When to this is added the fact that the mechanism of some machines is so utterly inaccessible that they literally have to be dismantled before the part affected can be reached it is easy to see that the maker is indirectly responsible for the expense entailed. The owner has to pay a bill for taking the machine apart and putting it together again simply because is was so designed that some of its most important parts were placed where they could not be reached in any other manner. Apart from this the actual time consumed in affecting the repair is trivial by comparison. Matters have gone so far that it would be difficult for the garage keeper to live down his unsavory reputation in the next half decade under favorable circumstances, but with a continuance of errors in design on the part of the maker it seems as if he would always be classed with the plumber in the estimation of the public.

About the Magneto.

Three years ago when the magneto for ignition purposes was first introduced here from abroad—that is, the magneto as it is known to-day, it was easily seen that designers and builders of cars had never taken the possibility of using such a machine into consideration. Of course, American makers had been experimenting with magnetos and with small direct current machines prior to that time, but they were so close an approach to toys that they were never considered seriously for any length of time. Some of them were so small that they could easily be carried around in an overcoat pocket and all of them were run by a belt so that they were usually attached to the body of the car and driven by the flywheel.

The high tension magnetos first introduced here were designed to be positively driven at the same speed as the engine, as is now customary with practically all machines of this type. Consequently it was necessary that they should be located in close proximity to the engine and preferably to the camshaft. How to get it there was such a serious problem that makers as a rule were not enthusiastic about its adoption, while those favoring it sufficiently to desire it as a part of the equipment of the cars at all hazards, found it necessary to resort to the dashboard or a special platform bolted to the side member of the frame. In others there was simply no place on the car where it could be put short of building an outrigger for its special occommodation. These were the big "two lungers" with their opposed cylinders as large as cannons. Their mechanism simply filled the frame from side to side and almost from end to end. The one moving part visible was the upper rim of the flywheel and only a small portion of this

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that jutted out of the maze of machinery.

Nor were any of the four-cylinder cars of that day much better off in this respect. The space between the dashboard and the cooler and between the limits of the cambered portion of the frame was not alone so limited, but so entirely taken up with the various parts of the mechanism that it was difficult to lay the palm of the hand on a free spot. The advantages of accessibility were not appreciated to the full then while the necessarily small proportions of the car made a bonnet of larger size out of the question, even if it were not a matter of taste with the designer of the car to crowd its engine under as small a bonnet as possible. Things have changed considerably since then—in fact, they have been totally reversed in this one particular for now it is nothing unusual to lift a ponderous looking bonnet and find beneath it a diminutive and wholly disproportionate little engine, so that whether the car has been designed with that end in view or not, the fitting of magneto ignition seldom presents any difficulty of this kind. It is now easy to find plenty of space at either side of the engine and in a number of instances at either end of the engine, so that from being a puzzle as to how it should be applied at all, it is now entirely a question of convenience.

Accessibility is important in this connection as much as it is with respect to the remainder of the engine, so that this will necessarily influence the machine's location. This and the necessity of giving it a positive drive are the two requisites. By stepping its speed up or down it may be driven from either end of the main shaft and pinions or chain and sprockets may be employed to effect this end. It is now simply a question of putting it on most conveniently and in just what this consists must be answered in a slightly different manner where each machine is concerned.

Effect of Freight Haulage.

However great may be the utility and degree of present application of the motor vehicle to the commercial haulage of freight and passengers, and however great its promise of future successes, it would appear that opportunities for new ventures are multiplying quite as fast, if not even faster, than the number of takers. And it would further appear that one of its strongest phases, and one of the most potent factors in its assimilation to the system of the world, lies in its especial fitness for what is essentially pioneer work.

There are, to-day, thousands upon thousands of miles of partially developed country in all parts of the world, carrying millions of undeveloped wealth in natural resources, which are only awaiting the final touch of civilization before giving up their treasures. And, however much their value in vegetable and mineral products may be appreciated, the one great barrier to their utilization lies in their isolation from the marts of the world. This cannot with profit be overcome by means of animal transport, because of the factors of time and expense, although frequently enough, urgent need is continuing their admittedly wasteful use. Railroads, indeed, carry the key to the dilemma, but railroads require for their support, first of all, a certain guaranteed traffic which is sufficiently great to repay the enormous cost of installation, and second, a measurable assurance of the continuance of that traffic to a degree adequate to the defrayal of operating costs.

As a happy medium between the two, then, the motor vehicle in its present state of development, stands distinctly fit. What is more, in addition to its relevancy to service which is too great to be met by animal, and too small to support railroad traffic, the motor vehicle displays a remarkable adaptibility to the work of exploration. And, whatever may be its success in combatting the rivalry of other and older modes of travel, it is evident that in localities where it is kept apart from direct conflict with anything else than the beast of burden and draught, it shines as a supreme weapon of progress. Thus, in replacing the pack and wagon train, and in prospecting new fields, it is fitted to supply the two requisites of commerce which they are not, namely, certainty and dispatch, and that at a cost which varies according to the propinquity of supply depots, from a rate per ton mile which breaks about even with the other under the most favorable circumstances, to a somewhat greater amount, according to location. But the increase of the ton-mile cost, when taken in conjunction with the time element and the, at times, uncalculable factor of adherence to a set schedule, places the advantage largely with the motor vehicle.

Of the two requirements to the installation of motor vehicle service, the one, the highroad, is a lasting benefit to any community, no matter what the degree of its importance commercially, and one which in many cases may be made partially self-supporting, if not self-purchasing at the hands of local society. Hence, after its first construction, it becomes a part of the community, and differentiates itself from the enterprise which gave it birth. The other requirement, the vehicles themselves, being absolutely mobile, may be transferred to other fields if the venture becomes unprofitable, or may be transferred and massed in any manner which best conforms to the demands of the case, without regard to schedule or track-room.

It is the identification with the budding development of great undertakings which these opportunities invite, which may be made to contribute great benefit to the world, and most substantial emoluments to the trade as well. And it is through opportunities such as these, that the advertisement of the motor truck and the motor 'bus may be carried on in a manner which is not simply spectacular, and thereby conducive to great publicity, but convincing beyond all power of decimal arithmatic.

Strength that is Weakness.

If the American Automobile Association is wise in time, it will profit by the withdrawal from membership of the Long Island Automobile Club. It either will enact a new basis of club membership or pay more attention to individual memberships. If the former has the advantage of adding strength in large blocks it is similarly possessed of corresponding disadvantage of loss in the same proportion. The loss of one member counts for little; the loss of one club counts for much and always, as in the case of the Long Island organization, gives rise to damaging reports of "secession," dissatisfaction and the like, it matters not what motives actually may induce the withdrawal. Club membership also provides a shining mark for the man with a grievance who would "get even" and for the "What do I get for my money?" individual, who usually expects a return of at least a $5 gold piece paid into his hand for every dollar he may have laid out. The common interests that may have been served are of small influence on such men. More than this, when several hundred dollars are annually taken from a club treasury there comes a time when most organizations forget the general interests and face the natural but selfish question, "Cannot we spend the same amount and obtain more direct benefit for ourselves?" and ultimately the affirmative side of the question rarely fails to carry the day.

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GLIDDEN DETAILS SETTLED

Weight Limit Lifted but Tonneaux Required—The Route and Regulations.

Paul H. Deming, chairman of the A. A. A. Touring Committee, made a flying trip to New York City on Decoration Day and as a result the furore created by the proposal to eliminate small cars has been stilled. At a meeting of the committee held on Thursday, S. S. Gorham, Secretary of the A. A. A., being present, a settlement was arrived at regarding rules, dates and route. The general conditions are as follows: The Third Annual (1906) Tour of the American Automobile Association will be divided into two parts; first, a pleasure tour, and; second, the Second Contest for the Charles J. Glidden Touring Trophy.

Any automobile may be entered in the main tour. For the Glidden contest, however, only tonneau touring cars seating at least four people are eligible—a sensible settlement of the troublesome point. The weight limit was raised entirely.

The main tour will be run from Chicago to Bretton Woods, N. H., by way of South Bend, Toledo, Cleveland, Erie to Buffalo and thence through New York State, Canada, Maine and New Hampshire, to Bretton Woods.

The Glidden contest will start at Buffalo and proceed by the following schedule to the destination at Bretton Woods:

Dates. Day's Runs.	Miles.
July 12—Buffalo to Rochester	75½
July 13—Rochester to Syracuse	97
July 14—Syracuse to Saratoga	154
July 15—Saratoga	
July 16—Saratoga to Elizabethtown N. Y.	100
July 17—Elizabethtown, N. Y., to Lake Champlain Hotel	35
July 18—Lake Champlain Hotel to Montreal	85
July 19—Montreal	
July 20—Montreal to Three Rivers	94
July 21—Three Rivers to Quebec	81
July 22—Quebec	
July 23—Quebec to Jackman, Me.	112½
July 24—Jackman to Rangeley Lakes	80
July 25—Rangeley	
July 26—Rangeley Lakes to Bretton Woods	115
Total mileage	1,029

The entrance fee for the tour is $50. Entrants may become contestants by so declaring in their entry blanks and making the entire run from Buffalo to Bretton Woods. Entrants for the tour may join the tour at Saratoga or any point west of Saratoga. Entrants not competing for the Glidden Trophy are subject only to rules governing their registration in and out of official garages and such other general regulations as may be deemed necessary by the Touring Committee.

Contestants for the Glidden Trophy will be subject to drastic rules and regulations which are now being drawn in accordance with the plans formulated at Thursday's meeting.

The weight limit has been abolished and cars with tonneaux built to carry four passengers of all prices and weights may compete.

The system of scoring is to be done on a time basis. A certain running schedule based on the maximum legal speed between town and town (with allowances for luncheon, local speed and traffic restrictions, etc.), will be prepared by the committee for each day's run. Each driver, on checking out in the morning, shall be notified of the exact hour and minute when he must reach the following garage control He will be penalized one point for each minute beyond this set time. Should he arrive before the hour and minute set, he will be penalized two points for each minute in advance of the time allowed. In addition repairs or adjustments on cars in garage will be allowed only on written application and the contestant will be penalized one point, per man employed, per minute. On arrival at garage controls and reporting in, the cars will be locked up for the night, and visited by their drivers or others only under the above conditions. At the close of the tour the lowest score wins.

The complete rules and entry blanks will be ready for distribution June 6. Entries close July 3 at noon with A. B. Tucker, Superintendent of the Tour, at No. 31 West Forty-second street, New York City. Numbers will be awarded in the order of receipt of entries.

Mr. Deming has let it be known that he himself will present a trophy for competition between those participating in the tour but who are not entered for the Gliddin contest. Other than that the rules will be far less stringent than in the latter case. Mr. Deming has not stated what conditions will attach to his prize.

How the Horses Dealt Death.

Statistics galore have been prepared showing the insignificantly small proportion of fatal accidents that are due to the automobile as compared to other means of transportation and they have been published so often that it is time that anyone interested in the subject should be able to repeat the table backward. Now a Frenchman comes forward and instead of boring the reader with figures, presents his facts in the shape of percentages. Coming from the country that has not alone known the automobile longest, but in which it is given the greatest latitude, they are instructive. As a destroyer of human life the horse stands foremost, overwhelmingly foremost, for he is responsible for not less than 83 per cent. of the total. The railroad comes next with but 9 per cent.; the bicycle third in the list with 5 per cent. and the automobile last and least as but 3 per cent. of the accidents ending fatally are attributed to it.

KELSEY CALLS FOR RULES

Tradesman Addresses the A. A. A. and Points out Some Sore Spots in the Sport.

C. W. Kelsey, sales manager of the Maxwell-Briscoe Motor Co., finally has put his finger on what long has been one of the weak spots of the administration of the sport—that absence of rules covering vital points or that existing rules may be infringed practically with impunity and without fear of punishment. Mr. Kelsey, who has engaged in a number of contests and who has not only seen but felt the effects of the rather free and easy method of government, has come to realize that nothing short of meting out some severe sentences will check or correct the evils. He felt so strongly on the subject that last week he penned the following timely communication to Secretary Gorham, of the American Automobile Association:

"I should like very much to see automobiling as a sport put on a very much higher basis than it is at the present time, and to this effect, I would make the following suggestions, which I think will have a great tendency towards elevating and improving automobile contests.

"In the first place, I think that the A. A. A. should make a rule something to this order: Any manufacturer entering a car in any event sanctioned by the A. A. A. and making his entries in a stock class and deliberately putting in a car which is not stock, should be debarred from entering in any event which the A. A. A. sanctions for the period of one year.

"A rule of this kind, of course, would be very important and it might be well that when such a protest is filed, it be referred to a special committee of the A. A. A., into whose hands the car protested against be placed and they make a thorough examination of such car to ascertain whether the car is stock throughout.

"I have taken this matter up with several manufacturers and every one of them is of the same opinion. Nearly all feel that as long as there is any partiality shown or that there is any chance for crooked work, the automobile game cannot be elevated to clean sport.

"Another matter which I think should also be taken up is that when an entry form is gotten up for any event which specifies classes of cars, the referee for such an event should be more careful in seeing that only cars which are eligible are entered.

"At the present time, the general tendency is to allow any car to enter any event so long as some one does not put in a protest. This, of course, is very wrong. First of all, a man enters a certain event only after he has made up his mind what other cars are eligible. After he has found out that he has a reasonable show, he sends in his entry fee.

"Now, when he finds cars entered in his

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event which are not eligible, he naturally is dissatisfied, for he feels that he has paid his entry fee for something which he is not getting, in other words, the promoters of the event get his money under false pretences. He also hesitates about protesting, owing to the feeling which a protest generally makes.

"It is absolutely wrong to get entries under these conditions. At the present time, every manufacturer believes that every other manufacturer is putting in special cars in these contests, and in a great many instances, this is undoubtedly true. The public in such instances are being greatly deceived, and there is no real value derived from any such contest.

"Now, what is needed is some rules on the above order which shall be very rigidly enforced and until some such rules are made, automobile races and endurance contests will be nothing more than a farce.

"Automobiling and sport should be synonymous. Unfortunately, however, there is nothing sportmanlike about present automobile contests, owing entirely to the lax manner in which they are carried out.

"I do not wish you to think that I feel that I have been unjustly treated. On the contrary, all the officials in every event that I have been entered in, have been most courteous and obliging, and everything has been done that I have ever requested, but I feel that some rigid rules should be taken immediately to have something of this kind done. Horse racing is called 'the sport of kings.' Is it not time that automobile racing should be termed 'the sport of gentlemen?'"

Long Islands Withdraw; New Club Forms.

By a vote of only seven per cent. of its total membership the Long Island Automobile Club has decided to withdraw from the American Automobile Association. The decision was reached at a meeting attended by only 27 members out of a total membership of 370. The resolution to withdraw was passed by a vote of 21 to 6. The club's action is due to the belief that the $400 spent for dues can be laid out for more direct benefits.

This action will not affect the national body to any great extent as there probably will be two automobile clubs in Brooklyn; in fact, plans already are under way for the formation of a new club, by those who believe in unitary organization and who do not favor the cheese-paring policy of a few members of the Long Island Automobile Club. The action of the seceders already has threatened to disrupt the Long Island A. C., for A. R. Pardington, a director of the American Automobile Association; Frank G. Webb, a member of the A. A. A. racing board, and others, have tendered their resignations to the club. These latter are interesting themselves in the formation of a new club, which may be called either the Brooklyn Automobile Club or the Touring Club of Long Island.

SWIFT TRIP WITH SEVEN UP

Springfielders Undertake Long Journey in Short Time and Accomplish it.

From Springfield, Mass., to New York and back to Boston, a distance of about 500 miles, in 19 hours 53 minutes, without once stopping the engine, is a record to be proud of. This was accomplished on Thursday last, 31st ult., by William E. Wright, vice-president of the Knox Automobile Co., of Springfield, in a regular four-cylinder 40 horsepower stock car. Leaving Springfield at 12 o'clock the car, loaded with seven passengers and 300 pounds of baggage, reached Hartford at 12:35; Meriden at 1:55; New Haven at 2:47; Bridgeport at 3:37 and arrived at Central Bridge, New York City, at 5:45 o'clock. There the machine was looked over without the engine being stopped and the start back was made at 6:12 o'clock. The machine reached Springfield at 12:55, stopping long enough to be signed, as was done at all stops, and it was then started towards Boston. Worcester was reached at 2:35 and the occupants were checked at the "intellectual centre" at 4:18, the entire journey, including stops, taking but 19 hours 53 minutes. Not a single mishap was suffered and according to the occupants of the car the engine did not stop operating during the entire run.



Club Bars its Members from Park.

With twenty-seven members as a nucleus, the Memphis (Tenn.) Automobile Club was organized and launched under favorable circumstances last week. Only those owning automobiles are eligible to membership. To avoid frightening horses on Sunday afternoons in the parks and to gain the friendship and respect of horsemen in the locality, the club passed this rule: "No member of this club shall drive or allow his car to be driven in any of the public parks between the hours of 1 o'clock in the afternoon or 7 o'clock in the evening on Sundays. Penalty for offenders: First offense, reprimand; second, fine, and third, expulsion." The officers elected were President, S. T. Carnes; vice-president, A. S. Caldwell; secretary, Harry Liggett; board of control, P. P. Williams, chairman; J. A. Omberg, F. F. Hill, W. F. Yates and J. Falls.

Astounding Bill Makes Progress.

Further details of the German Automobile Liability Bill, the object of which is to make the owner of a car responsible for every accident in which it is concerned, are now forthcoming. It practically places the automobilist in the same class as a common carrier—like the railroad or the steamship his liability for accident becomes absolute. Provision will have to be made by the motorist who kills a man for the widow and orphans, and he must bear the funeral and other expenses in addition. In non-fatal cases the motorist will have to pay compensation and medical fees and in case of permanent disability a life pension. Numerous petitions against the bill were sent to the Reichstag but no speakers appeared and it passed its first reading without opposition. It was then sent to a special committee of fourteen and it is anticipated that the findings of the latter will accord with the provisions of this retrogressive specimen of law making.

At the annual meeting of the Automobile Club of St. Louis, Mo., last week, the following officers were elected for the ensuing club year: President, Alexander Euston; vice-president, Dr. Edgar M. Sennessey; secretary-treasurer, Roy Britton.

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DOWNEY'S SPECTACULAR SPILL

It Furnished Excitement at Readville Meet —Stock Cars do Good Work.

Joseph Downey, driving a 90 horsepower racing Mercedes, furnished between six and seven thousand spectators at the Readville track, Boston, Mass., last Wednesday, 30th ult., a thrill that will last them for some time.

It happened in the early part of the Decoration Day race meet of the Bay State Automobile Association. Downey took the car out on the track to tune it up in preparation for his two special match races. The track was clear when he started around shortly after 2 o'clock, but a few minutes later some cars were sent down to the starting point. When Downey had reached the three-quarter mark he let the car out a bit and as he swung into the home stretch he saw the other cars on the track, blocking his progress. It was too late to bring the big racing machine to a stop and the only chance was for Downey to squeeze through a narrow space between S. W. Boyson's Mitchell and the fence. Just as he tried to do this the big car skidded, struck the other car, ripping a wheel off and sending Downey flying through the air. He landed on the ground fifteen feet away with nothing but a sprained wrist. The big racing car turned a complete somersault and landing on the fence demolished it, then took fire.

Exclusive of Downey's spectacular performance, Charles Basle, the young French driver of H. L. Bowden's Mercedes racer, was easily the star performer of the meet. He won his ten-mile match race with W. S. Hilliard's Napier by a comfortable margin, in 10:10⅗, going the fastest mile in 56⅘, and then in the free-for-all he gave a remarkable exhibition, covering the ten-mile circuit in 9:27⅕, and topped off his day's work by reeling off one mile in 54⅗, which is a record for the Readville track.

Had it not been for a damaged tire on the Fiat Junior, driven by Emmanuel Cedrino, Jr., the much touted Stanley steamers would have been given a much more decisive beating. The steamers flashed, steamed and whistled for a couple of miles but that was about the limit. Frank Durbin drove one of them against the Mercedes, driven by Basle, and at the end of three miles the steamer was hopelessly out of the running. Basle won the ten miles by over a mile in the track record time of 9:27⅕. In the second heat of the free-for-all, the Fiat Junior, with Cedrino up, trailed along behind the Stanley until the fourth lap, then jumped out in front. The Fiat gained considerably in the next two or three laps, but on the eighth mile one of his tires went soft. He managed to keep going, but on the next lap his tire went out of commission entirely and Marriott won a hollow victory. When it came time for the final heat it was given out that the Stanley could not make up steam and would not start. Basle came out and reeled off a mile in 54⅗, winning by default.

There was nothing that could touch George Reed's 40 horsepower Stearns in the event for stock gasolene cars selling at between $3,000 and $4,000. There were four starters—Reed, Stearns; H. F. Wilson Rambler; H. M. Snow, Acme, and E. C Bald, Columbia. At the drop of the flag the Stearns straightway jumped into the lead and at the end of a mile it had a lead of 50 yards on the Columbia. After the second lap the Rambler moved up to second place, and the order was not changed. Reed won out by about three-quarters of a mile, his time being 6:44⅖.

One of the most exciting events of the afternoon was the ten mile handicap, an unusual occurrence in automobile racing. The scratch car, J. R. Harding's De Dietrich, was not allowed to start because the chauffeur had neglected the formality of putting on mud guards. The virtual scratch car was an American Mercedes, with an allowance on 1½ minutes. The long marker, a Reo, with 4 minutes 30 seconds, had a long lead on the others at the start, but the real interest centered in the three cornered contest between the 24 horsepower Columbia, driven by H. P. Maxim (3:00); the Stearns, with George Read up (2:00), and Rambler, driven by H. F. Wilson, from the same allowance. These latter two drove nip and tuck for several miles until the Stearns began to draw away. The Columbia was going great guns, however, but although Reed pushed his car to the limit he could not cut down Maxim's lead before the gun popped.

The Rambler had its inning in the event for cars listing at from $2,000 to $3,000. It was a three heat race and the first was captured easily by a 45 horsepower Dolson, driven by F. P. Mathey, by a quarter of a mile from F. A. Grout's Grout. Fred Allen captured the second heat in a 24 horsepower Olds. There were three cars from the third division that qualified for the final heat, the Rambler, driven by H. F. Wilson; the Columbia, H. P. Maxim; and a Stoddard-Dayton, by H. A. Bangs. This made seven starters all told and when it came to real racing the Rambler, to use a horsey expression, "had the legs of the party." Wilson lost no time in taking the lead and he set such a dust raising pace that the others could not pass. He crossed the line with his tires almost melting. The time was 6:32⅘, the best scored by any stock car during the meet.

In the first race of the afternoon, for steam cars, the one driven by Frank Durbin went wrong after running a mile, which gave the race to H. E. Rogers.

Two women drivers, Mrs. Des Rochers and Mrs. Rogers, who cavorted at the Worcester hill climb, were down on the program to drive in one of the events, but, happily, they were unable to keep the engagement.

Several of the drivers went against the track records and although they made fast times, setting up new local figures, none of the world's records were disturbed. The summaries follow:

Five miles for stock steam cars—Won by Ernest Rogers, 10 horsepower Stanley. Time, 5:33⅘.

Five miles for gasolene stock cars costing not more than $1,000—First heat won by Ralph Coburn, 10 horsepower Maxwell. Final heat won by Dr. J. F. Hovestadt, 22 horsepower Buick; second, Ralph Coburn, 10 horsepower Maxwell. Time, 7:24.

Five miles for gasolene stock cars, $1,000 to $2,000—First heat won by F. A. Grout, 28 horsepower Grout; second, E. R. Blake, 20 horsepower Jackson. Time, 7:13. Second heat won by G. M. Wetherbee, 24 horsepower Crawford; second, H. Foss, 24 horsepower Mitchell. Time, 7:32⅘. Final heat won by F. A. Grout, 28 horsepower Grout; second, G. M. Wetherbee, 24 horsepower Crawford; third, E. P. Blake, 20 horsepower Jackson; fourth, H. Foss, 24 horsepower Mitchell. Time, 7:00⅗.

Five miles for gasolene stock cars, $2,000 to $3,000—First heat won by F. A. Mathey, 45 horsepower Dolson; second, F. A. Grout, 35 horsepower Grout. Time, 6:52. Second heat won by Fred Allen, 24 horsepower Olds; second, Harry Woolaver, 24 horsepower Columbia. Time, 7:53⅗. Final heat won by H. E. Wilson, 35 horsepower Rambler; second, F. A. Mathey, 45 horsepower Dolson; third, Harry Woolaver, 24 horsepower Columbia. Time, 6:32⅘.

Five miles for gasolene stock cars, $3,000 to $4,000—Won by George G. Reed, 40 horsepower Stearns; second, H. F. Wilson, 35 horsepower Rambler. Time, 6:44⅗.

Ten miles, free-for-all—First heat won by Charles Basle, 80 horsepower Mercedes; second, Frank Durbin, 30 horsepower Stanley. Time, 9:27⅕. Second heat won by F. H. Marriott, 30 horsepower Stanley; second, Emmanuel Cedrino, 24 horsepower Fiat. Time, 10:44⅗. Final heat won by Charles Basle, 80 horsepower Mercedes, by default. Time not taken.

Ten mile handicap, for stock cars, owners to drive—Won by Hiram Percy Maxim, 24 horsepower Columbia (3:00); second, George G. Reed, 40 horsepower Stearns (2:00); third, H. E. Wilson, 35 horsepower Rambler (2:00). Time, 14:36⅘.

Ten mile match race between Charles Basle, 80 horsepower Mercedes, and W. S. Hilliard, 80 horsepower Napier—Won by Basle. Time, 10:10⅗.

One mile against time—Harry Woolaver, 24 horsepower Columbia. Time, 1:12⅗.

Five miles against time—Emmanuel Cedrino, 24 horsepower Fiat. Time, 5:04⅗.

One mile against time—Fred H. Marriott, 30 horsepower Stanley. Time, 0:57⅗.

Five miles against time—T. W. Moore, 100 horsepower Premier. Time, 5:23⅗.

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OLDFIELD WINS LONG GRIND

Finished Alone in Fifty Miles "Sweepstakes"—Albert Tries a New Name.

Although Barney Oldfield, Jap Clemens and Oldfield's racing partner, Paul Albert—he changed his name to "Kaiser" for this particular meet—competed in the fifth annual Decoration Day race meet at Indianapolis, Ind., on May 30th, it could not be classed a "howling" success. To be sure a large crowd was out, several thousand spectators having gathered in the grandstand, but the racing was mediocre, and so far as real sport goes, the meet was a frost.

Only two races on the afternoon's program attracted more than passing attention, the hundred mile event which shrank to a half-century run, because there was but one car left in the race at the completion of fifty miles, and the so-called "Hoosier sweepstakes." At the last moment it was discovered that the car C. A. Coey, of Chicago, was scheduled to drive in the 100 mile event, was not in shape to enter, so his name was scratched off the list. The starters in the race were: Barney Oldfield, Peerless; Harry Stutts, 28 horsepower Olds; William T. Muir, Pope-Toledo, and "Red" Davidson, Cadillac. The getaway in the race was perfect. Harry Stutts opened the throttle of the Olds to the limit and after going twenty-three miles had gained a lap on Oldfield. At that time he looked an easy winner, but on the thirty-seventh mile a grease cup worked loose and fell by the wayside. Stutts made a miscalculation and thought he had to go only two miles more when the accident occurred and endeavored to drive the car the remaining distance without oil, but he was compelled to drop out. Muir's Pope-Toledo balked after twelve miles had been run off and that stop cost Muir quite a sum of real money, for the Louisville driver had bet the champion that he would beat him. The little Cadillac was never a contender but it kept going all the while although it had traveled only 25 miles when Oldfield completed the fifty.

A local driver named Ford won the three mile event for Cadillac cars in 5:33⅗, by several lengths over his nearest adversary. The little Leader runabout fully lived up to its name in the three mile event for cars costing les than $1,000, for it led all the way, and breezed across the finish line a winner by several city blocks. There were three other starters in the race but they were so far behind that it was difficult to determine their position at the finish. The three-mile novelty created the most fun of the afternoon. Of course, everybody wanted to ride in Oldfield's car, for they regarded him as the winner, but Harry Stutts, in the Oldsmobile, set all conjectures awry by winning out in fine style. The time, 5:19.

The chief attraction of the afternoon was the "Hoosier sweepstakes," a five mile free-for-all with a purse of $1,000 to the winner. Oldfield never made an easier "thou" in his life. "Kaiser," that's Oldfield's helper's new nom de plume—Coey, Oldfield and Clemens were carded to fight for the thousand dollars, but it was announced that Coey's six-cylinder Thomas had failed to arrive from Chicago, but that he would race Oldfield for a side bet of $5,000 at Louisville, Ky., next week. (The crowd was wise and smiled). This necessitated a change in the program so it was decided to let "Paul Albert," "Lefevre," "Kaiser," or whatever his name might be, run against Oldfield to determine which of them should go against Jap Clemens for the final. The heat was to have been at three miles, but owing to a misunderstanding the men went five miles, Oldfield winning, of course. Then the many-named German made a grandstand play by claiming that he was ahead at the three-mile mark. This was to set the spectators on edge, which it did, and they insisted that the heat be re-run. The distance was made two miles and Oldfield won. In the final Clemens made an effort to win the purse, but his car was somewhat stiff and Oldfield won easily. The time was 5:28⅗. Following this Oldfield went against the record for one mile, as an enthusiast had offered a present of $500, should he succeed in setting up new figures. The performance was caught at 58⅗, not low enough to win the money, but still one second lower than the Indianapolis track record. The summaries follow:

Fifty mile open—Won by Barney Oldfield, Peerless; only car to finish. Other starters: W. T. Muir, Pope-Toledo; Harry Stutts, Oldsmobile; "Red" Davidson, Cadillac. Time, 69:04⅘.

Three miles for Cadillac cars—Won by Ford. Time, 5:33⅗.

Three miles for cars costing under $1,000—Won by M. Church, Leader. Time, 5:15⅕.

Three mile novelty race—Won by Harry Stutts, Oldsmobile; second, Barney Oldfield, Peerless. Time, 5:19.

Five miles free-for-all, for $1,000 purse—First heat won by Barney Oldfield, Peerless; second, Paul "Kaiser," Peerless. Time, 2:28⅗. Final heat won by Barney Oldfield, Peerless; second, Jap Clemens, National. Time, 5:28⅗.

One mile against time—Barney Oldfield, Peerless, Time, 0:58⅗.

What the Small Boy Wanted to Know.

"It was just when the flotilla of automobiles was wending its way south taking home the army of sweet breadwinners that a big touring car was troubled with gall stones in the gear case, or broken ligaments in the wiring, or something like that," says a Windy City scribe. "In any event this car was down and out; while down, and in under was the mechanic flat on his back massaging the outfit with a screwdriver. And then a small boy stopped alongside.

"What are you doing, milking it?" he asked.

FAIR SPORT AT BALTIMORE

Two "Runaways," one Close Finish and Almost an Accident Mark the Day.

Baltimore's Decoration Day race meet at Electric Park drew a larger holiday crowd than ever had attended an automobile race meet in the Monumental City. Not an accident marred the meet, although one was narrowly averted just before the first event was called. A big six-cylinder car was tuning up on the track when a boy with a bicycle attempted to cross the track. The boy with the bicycle did not notice the approach of the car, but the driver espied him just in the nick of time. The cyclo-pedestrian was lifted on the bonnet of the car and held there by the driver until the car could be brought to a dead stop.

The cracking of a spark plug marred the finish of the three-mile handicap. In this event M. M. Higgins, in a 10 horsepower Maxwell, was put on scratch, while Herman Norwood, in a 16 horsepower Lambert runabout, was at the quarter pole and J. E. Norwood, in a 16 horsepower Lambetr touring car, started from the three-eighths pole. Mason started off well and steadily gained on his opponents, and was about to pass the leader at one and one-half miles when a spark plug cracked. Norwood won as he pleased.

In the five-mile event for cars listing at $2,500 and under, there were three starters. Arthur Norwood, 16 horsepower Lambert, took the lead at the start which he held for a lap, closely followed by Roland Morgan, 20 horsepower Stevens. Then A. L. McCormick, in a 20 horsepower Stevens, came through the dust and passed the other two, and held the lead until the finish, lapping the field on the last lap. His time was 7:51.

Although there were only three starters in the free-for-all, this easily was the best contested event of the day. Stanley Zell, 50 horsepower Thomas, took the lead at the start which he held until the second mile, when McCormick, Stevens, essayed mile, when McCormick (Stevens) essayed the initiative. On the fifth and last mile the Thomas car jumped to the front, and Gill gamely tried to overhaul it. The finish was the closest ever witnessed in an automobile race in the Maryland city, Zell winning by less than a yard. Summaries:

Three mile handicap—Won by Herman Norwood, 16 horsepower Lambert; second, J. E. Norwood, 16 horsepower Lambert; third, M. M. Higgins, 10 horsepower Maxwell. Time, 5:36.

Five miles for cars selling under $2,500—Won by A. L. McCormick, 20 horsepower Stevens; second, Arthur Norwood, 16 horsepower Lambert; third, Roland Morgan, 20 horsepower Stevens. Time, 7:51.

Free-for-all—Won by Stanley Zell, 50 horsepower Thomas; second, Howard Gill, Peerless; third, A. L. McCormick, 20 horsepower Stevens. Time, 8:04.

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HILL CLIMBING AT CLEVELAND

Owner-Manufacturers Prove their Mettle—Stearns and White Share Honors.

Honors at the second annual hill climb of the Cleveland Automobile Club, held on Gates Mill hill, near that city, on Decoration Day, last week, were equally distributed between Reo, White and Stearns cars, the credit of making the fastest time of the day going to the last named. Reo cars secured three firsts and one second; White steam cars earned two firsts, three seconds and one third, and Stearns cars gathered in three firsts, one third and two fifths. The Thomas was credited with one first while the Stoddard-Dayton had one first and innumerable thirds and fourths.

While Gates Mill hill is not very steep—it has an average gradient of but six per cent.—its tortuous course makes the ascent a sport not for the novice. The surface of the course could not have been in better condition as the rain had fallen just enough the night before to lay the dust and harden the roadbed. In addition to this the road had been oiled where it needed it and in other places the scraper had done good service. Several thousand people lined the sides of the course and a feature was the prevalence of automobiles. Not an idle moment was experienced during the running of the events and the success of the meeting was due, to a great extent, to the efforts of Asa Goddard, formerly of Worcester, Mass., who managed last year's climb for the Worcester Automobile Club, who is now secretary of the Cleveland club.

Frank B. Stearns, in his own machine, was the lion of the day, for he took the mile climb in flying colors, placing the record for the course at 1:23⅗. This was accomplished in the free-for-all, in which A. J. Schaife gave him a good fight. Schaife drove a White and finished in 1:25⅕. Walter C. White also drove a steam car in the free-for-all and finished third. His time was 1:41.

Stearns's next best performance was made in the event for cars weighing between 1,432 and 2,204 pounds. He went up in 1:24⅘, Schaife and Walter White again finishing second and third respectively. Frank Adams, in a Stoddard-Dayton, was fourth.

Reo cars scored first in the first three events to be run. In the one for the championship of Cuyahoga county, M. McInness was first in 2:14⅘. This event was for amateur drivers and some question has arisen as to McInness being eligible; in case he is disqualified the championship will be awarded to C. W. Ferguson, Pope-Toledo, who made the next best time in 2:15. Thomas, driving a Reo, won the event for cars costing between $850 and $1,500 and McInness was first in the event for amateurs for cars of the same classification. Mrs. J. S. Simons, the only "lady driver" in the climb, finished third in this event. She drove a Jackson up the mile hill in 2:43⅗.

Arthur J. Schaife, driving a White steam car, scored the best time in the event for cars listing between $1,500 and $2,000. The timers caught him at 1:52⅕. Walter C. White, driving the same make car, finished first in the event for cars costing between $2,000 and $3,000. His time was 1:44. L. B. Stearns, Stearns, was first in the $3,000 to $5,000 class and climbed the hill easily in 1:40⅕, beating out the second man by nearly fifteen seconds.

A Thomas, with Ownes up, scored in the $3,000 to $5,000 class, owners or regular chauffeurs to drive. It was the only contestant. Frank Adams, at the wheel of a Stoddard-Dayton, finished first in the event for cars weighing between 851 and 1,432 pounds. He was clocked at 1:44⅗. Thomas, driving a Reo, finished second in 1:59, and H. B. Odell, Stoddard-Dayton, was third. His time was 2:35⅗. The summaries follow:

For amateur championship of Cuyahoga county, stock cars, owners to drive—Won by M. McInnes, Reo, 2:14⅘; second, C. W. Ferguson, Pope-Toledo, 2:15; third, T. J. Wetzel, Stoddard-Dayton, 2:27; fourth, W. J. Jenner, Buick, 2:32⅘; firth, I. J. Bregman, Royal, 3:06⅗.

Open to stock cars listed at over $850 and not more than $1,500—Won by Thomas, Reo, 2:07; second, W. L. Marr, Buick, 2:19⅗; third, Whittle, Buick, 2:27; fourth, H. B. Odell, Stoddard-Dayton, 2:38⅗; fifth, Henry Page, Buick, 2:50⅕; sixth, Louis Schmidt, Jackson, 2:58⅗.

Open to stock cars listing between $3,000 $850 and not more than $1,500, amateurs to drive—Won by McInnes, Reo, 2:08; second, W. H. Jenner, Buick, 2:38⅕; third, Mrs. J. C. Simons, Jackson, 2:43⅗; fourth, H. B. Odell, Stoddard-Dayton, 2:50⅗.

Open to stock cars listed between $1,500 and $2,000—Won by Arthur J. Schaife, White, 1:52⅕; second, E. M. Springsteen, Franklin, 2:56; third, M. Taylor, Franklin, 3:12⅘.

Open to stock cars listing between $2,000 and $3,000—Won by Walter C. White, White, 1:44; second, Louis C. Schmidt, Jackson, 1:50⅗; third, H. S. Moore, Stoddard-Dayton, 2:19⅗; fourth, E. M. Springsteen, Franklin, 2:48⅗.

Open to stock cars listing between $3,000 and $5,000—Won by L. B. Stearns, Stearns, 1:40⅕; second, R. H. Magoon, Pope-Toledo, 2:04; third, L. Petrie, Stearns, 2:17; fourth, Owens, Thomas, 2:19; fifth, George Soules, Pope-Toledo, 2:25⅗.

Open to stock cars listing between $3,000 and $5,000, owners or regular chauffeurs to drive—Won by Owens, Thomas, 2:15⅗.

Open to cars weighing between 851 and 1,432 pounds—Won by Frank Adams, Stoddard-Dayton, 1:44⅗; second, Thomas, Reo, 1:59; third, H. B. Odell, Stoddard-Dayton, 2:35⅗; fourth, Louis Schmidt, Jackson, 3:05; fifth, W. S. Schroeder, Franklin, 3:09.

Open to cars weighing between 1,432 and 2,204 pounds—Won by F. B. Stearns, Stearns, 1:24⅘; second, A. J. Schaife, White, 1:32⅗; third, Walter C. White, White, 1:39⅗; fourth, Frank Adams, Stoddard-Dayton, 1:41⅕; fifth, Holden, Stearns, 1:55⅗; sixth, G. F. Ruswin, Buick, 2:22; seventh, Whittle, Buick, 2:22⅗; eighth, Harry Page, 2:29⅗.

Free-for-all—Won by F. B. Stearns, 1:23⅗; second, A. J. Schaife, White, 1:25⅕; third, Walter C. White, 1:41; fourth, Frank Adams, Stoddard-Dayton, 1:43⅕; fifth, Holden, Stearns, 1:55⅗.

A. A. A. Tables Long Island Resignation.

The most important business transacted at the meeting of the board of directors of the American Automobile Association at the rooms of the Automobile Club of America, Tuesday afternoon, was the tabling of the resignation of the Long Island Automobile Club from the association. The resignation of the Long Island organization was not in accord with the ideas of a majority of the club members and it is understood that the conservative ones asked that the resignation be tabled particularly as the club's dues have been paid up until October 1.

The Washington (D. C.) Automobile Racing Association and thirty-five individuals were elected to membership by the directors. Asa Goddard, who previously had represented the Worcester (Mass) Automobile Club on the board, resigned, as he has become secretary of the Cleveland (Ohio) Automobile Club; J. P. Coughlan, president of the Worcester organization, was elected a director to succeed Mr. Goddard.

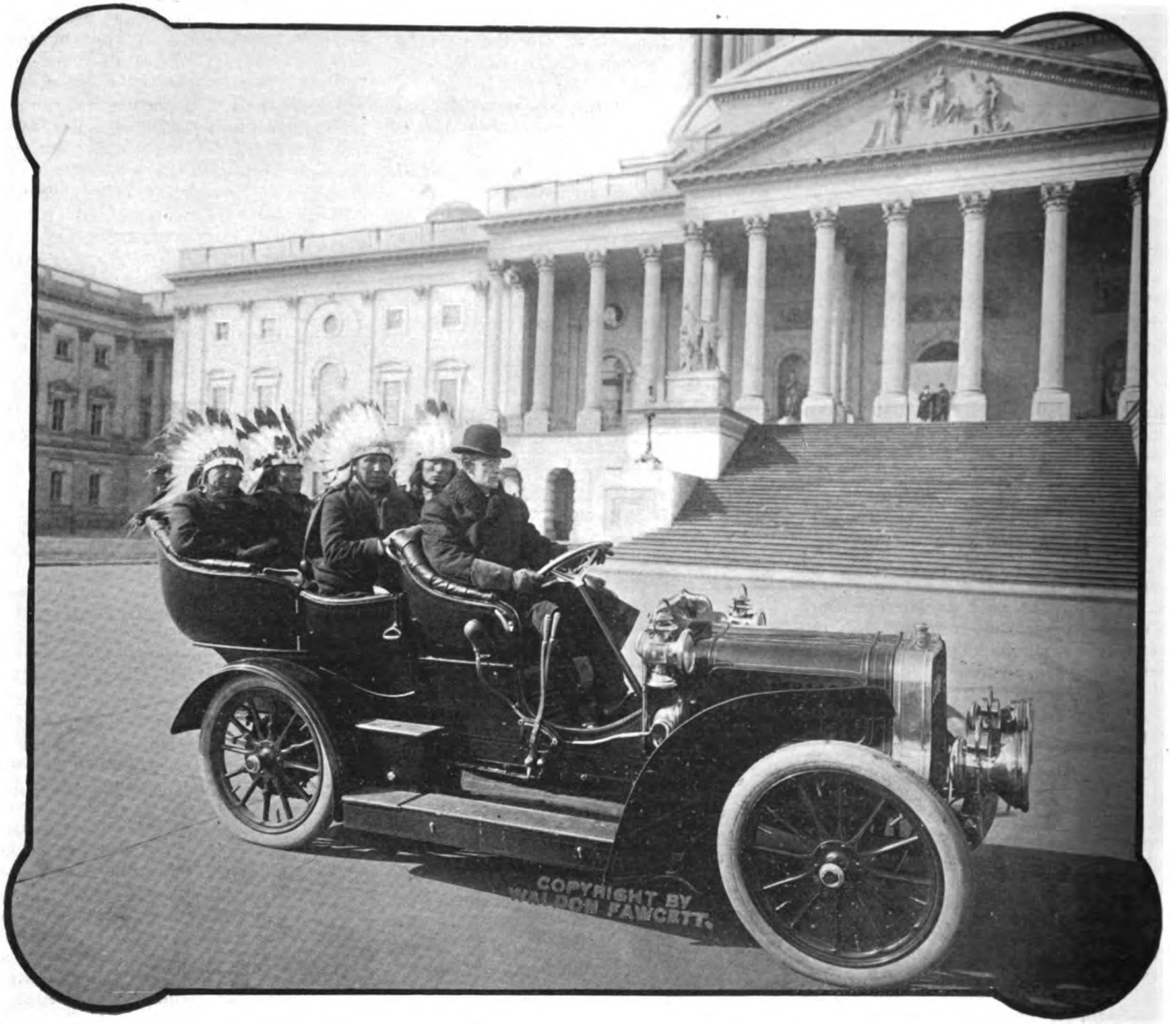
Announcement was made of the establishment of an insurance department through which members of the association may obtain reduced rates on their insurance. President Farson was not present at the meeting, so L. R. Speare, of the Bay State Automobile Association, wielded the gavel. Beside Mr. Speare, those in attendance were: Dave Hennen Morris, Automobile Club of America; Amos G. Batchelder, New York Motor Club; A. R. Pardington, Long Island Automobile Club; George E. Farrington, Automobile Club of New Jersey; G. A. Post, North Jersey Automobile Club, and Windsor T. White, Cleveland Automobile Club.

Salt Lake's Subsidiary Club.

At the last meeting of the Salt Lake (Utah) Automobile Club, a subsidiary club, the name of which has not been decided yet, was born. The object of the new organization will be to promote the building of new roads and special drives for automobiles. The officers elected were: President, F. J. Hagenbarth; vice-president, D. C. Jackling; treasurer and secretary, S. H. Sharman. The directors are D. E. Burley, Lester Freed, C. W. Whiteley, H. S. Haynes and L. C. Snow.

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How the Redskins now Visit the "White Father"



Ever since it began to dawn upon the aboriginal minds of those only thoroughbred Americans, the children of the first settlers, that there had come to be an amalgamation of all the nations, including the original "big six," and several hundred more which had sent over delegations from foreign hunting grounds; and that a big pale face chief sat over the union council at Washington and from the great white tepee dispensed justice to all the children alike, they and their children and their children's children have had an overwhelming and perennial desire to go up and lay their offerings at his feet, and pay him their respects. And whenever it has become the duty and privilege of one or another tribe to send its best braves to face the great white father, they and their offspring have thereby gained a new dignity and an honor in life which no cloud of discontent can ever dim, no mists of oppression tarnish.

Once, they came bringing their faithful war ponies and wrapped in their blankets of state, pattered silently in stolid indifference along the broad trails of the capital lodge. But with the passing of the seasons and the ever changing standards of their lives it at length became evident that what one time contributed to the majesty of their appearance, now but threw it into laughing scorn. The ponies hence, were only fit for the plain and the sawdust ring. Now, they no longer amble through the streets of the city of senators in stoical nonchlance, but instead ride enthroned in the mighty fire-water-wagon-without-horses which bears them so swiftly and well however they care to go. The picture shows a complacent quartette of them on one of their periodical visits. They are evidently quite reconciled to the abandonment of the ponies, after all, and mightily pleased with the way in which the modern substitute for the pinto displaces its original rival.

In the systematic campaign of education which is being carried on along the route of the forthcoming Sarthe Circuit in an effort to stimulate the interest and cooperation of the local residents and landholders, the greatest pains are being taken to make the work complete. Wherever possible, free Cinematograph entertainments are being held in public halls, while where this is found to be impracticable, lectures are given from any vantage point attainable. For this purpose, the roof of a limousine car has been more than once brought into requisition.

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WHEN PREIGNITION OCCURS

What Causes it and the Remedies to Apply —Poor Oil one Evil.

Preignition of the engine is a fault that is apt to deceive the novice at driving for some little time. Even after his first experience of the kind he will be loath to attribute a stoppage to it unless absolutely certain of it, for it constitutes a defection that means considerable in the way of overhauling. While caused directly by something easily remedied, it is no light matter to get at the seat of the trouble before operations can be undertaken. The root of the trouble is to be found in a continued excess of lubricating oil or of the wrong kind of oil. Probably the latter will bring it about in a much shorter time. This works its way into the combustion chamber and becomes carbonized. The greater proportion of it is blown out at the exhaust valve, but the small percentage that remains is more than sufficient to cause the car to be laid up in time. This small amount falls back and becomes attached to the top of the piston. Gradual accretions not alone strengthen its hold on the metal but increase its size until there is a miniature sharp pointed cone rising almost vertically.

Having got into this condition it is only necessary for the engine to be allowed to run hot for a short time. In the majority of cases it will be running at good speed when the trouble begins to manifest itself so that there will ordinarily be no visible symptoms of the ailment; if the car is standing the engine will continue to run just as usual. But if found on the road it will be found unresponsive to manipulation of the spark and sometimes of the throttle lever. At any rate it will develop an alarming weakness on hills and no amount of juggling suffices to improve matters. Motors that have been badly afflicted with a case of preignition have been known to run for half an hour or more without giving any indication of the trouble except those just referred to and it must be admitted, they point to causes other than a failure of the electric spark to do its duty. In other cases, as the engine becomes hotter the preignition becomes earlier and earlier until with an alarming pounding as a preliminary it finally brings the engine to a stop and any attempt to restart before permitting things to cool will result in a nasty backkick, even with the electric current switched off. And a certain test of this state of affairs is to shut off the spark while the motor is running; if the investigator's suspicions are to be confirmed the engine will continue to perform just as if nothing had happened except that it will not develop any power under load. In substantiation of this, there may be cited the case of a car whose driver learned the trouble after a short search and resolved to try the so-called expert of the garage where he stored the car.

Running up to the curb he called the chief mechanic out for a tour of inspection. The motor was turning over with that beautiful rythmatic purr that brings contentment to the ears of every driver.

"Well, what's the matter with it?" was the repairer's query after having stood idle for a few minutes.

"That's for you to find out," was the rejoinder.

The knight of the spanner looked over things for a few minutes and it must be admitted that everything was running as smoothly as could be desired.

"There's absolutely nothing the matter with that car as far as I can see," was the amazed comment.

"Well, now what is the matter?" asked the driver again, drawing the plug out of the coil, which did not disturb the motor's running in the slightest. Scenting a trick the mechanic looked around on the dash to see what had been done; noted the missing plug and lifted the coil box cover. The tremblers, of course. had ceased to buzz but the engine ran on just the same. The car was not provided with any other means of ignition and being satisfied on this point, further search was unnecessary.

"That's as pretty a case of preignition as I ever came across," he commented. "Run her inside and we'll look after it." But the slight effort called for by the runway leading to the garage was too much for the engine and brought it to a halt.

When this trouble does occur, "fixing it up" implies considerable in the way of overhauling. Just what it will consist of will naturally depend on the car and its degree of accessibility. In the case of an engine having the cylinders cast in pairs, it means the dismantling of the twins in succession, or if independent cylinders, one at a time, which amounts to the same thing. The trouble may be confined to one cylinder, but where it exists to any degree it is probable that the others are badly affected also so that it practically means tearing down the entire engine unless there is some other means of access to the piston heads. In the case of engines with oppositely disposed valves located in liberal sized chambers, it may be possible by lifting off the covers and removing the valves, to get at the top of the piston with a scraper. A steady application of the latter to every part of the piston head as well as to all protruding parts of the valve chamber, followed by a thorough washing with gasolene may be sufficient. By some, a bath of strong washing soda applied hot and allowed to remain for some time is recommended as a means of loosening the deposit, but it must be followed by scraping and washing in order to make an effective job.

At best these are half way measures. The only thorough way of accomplishing the end sought, which is a thorough cleaning out of the combustion chamber, is by tearing down the engine and exposing the pistons entire. It will then be apparent whether they are altogether responsible or whether some of the small carbon cones that can be productive of so much trouble have also formed on the walls of the chamber above the travel of the piston or in the valve pockets. Having got that far the remedy is not difficult to apply, and in the case of an old engine the opportunity thus offered may be taken advantage of to take up any looseness of the connecting rod or crankshaft bearings. Before having suffered from this trouble the average driver is apt to be too liberal in the use of lubricating oil; after it too sparing. In either case, the proper grade of oil will go a long way toward averting a repetition of the occurrence. A day's run with "any old oil" may foul the motor to an extent where this costly process is necessary, whereas the same result might not be forthcoming after a season's use of the right kind of oil.

Tricks of the Auction Trade.

Selling automobiles at auction has not met with the same ready acceptation at the hands of the public on this side of the water that has been accorded it abroad. It is a practice that has been frankly regarded with more suspicion than interest and has led a doubtful existence here. On all such occasions, whether the subject of the sale be automobiles or not, there is usually a liberal sprinkling of "cappers" or "runners up" in the audience, particularly when the sale is held under auspices similar to those that have characterized most automobile auction sales in New York.

London auctioneers go this one better; they cajole the seller into putting no fixed price on his car. "It would be too bad to lose a sale just for the sake of $5 or $10," is the argument that appeals forcibly to the man who wishes to realize on a second-hand car and reassured in this manner, he leaves it all to the auctioneers. Their henchmen distributed through the audience are not merely bidders up; they actually buy the cars that are knocked down to them—nominally for themselves and in reality for the house. But instead of losing a matter of $5 or $10, the owner finds that his car has fallen short of the price he would have set on it by fully $300 to $500, and in some instances more. His disgust at the proceeding is not alleviated by learning a few days later that its buyer has resold it at a profit amounting to the difference or more.

Until the good people of Lorain, Ohio, become educated to the ways of automobiles there is likely to result untold confusion. Recently a motorist was testing his machine in the back yard and, as frequently happens, he was exploding too rich a mixture. Some well meaning person, seeing the thick blue smoke emanating from the premises, hurriedly turned in the fire alarm.

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THE VARIABLE CUT-OFF

How it is Coming into use and the Advantage made Available.

It is interesting to note that once the fundamental principles of the internal combustion engine became well established, subsequent developments have closely followed steam engineering practice and in nothing is this more in evidence than in the adoption of the variable inlet valve as a means of controlling the speed and power of the motor. Primarily spark advance was the sole means of varying speed and power and its inadequacy in accomplishing the latter soon followed by the adoption of the throttle. And now the last named inseparable adjunct of every steam engine is being supplemented by what amounts to an adaptation of the variable cut-off universally used on locomotives. It is but one form of the many methods adopted in the striving after increased flexibility on the part of automobile engine designers, and it constitutes a means of securing this end that offers numerous advantages.

There appears to be little doubt but that it forms the most perfect form of throttle, which is moreover at exactly the location in which it is needed as shutting off the fuel supply at the mixture exit of the carburetter leaves a partial vacuum in the manifold. When the carburetter throttle is reopened the engine cannot respond as instantaneously as there is practically no fuel between it and the carburetter. In rebuttal of this contention it may be said that the length of time intervening is hardly more than sufficient to be appreciable, but it is in this very feature that flexibility lies. Should the opening of the carburetter throttle and the application of the load be simultaneous the speed of the engine is apt to be further retarded before the influence of the increased amount of fuel makes itself felt. With the variable inlet the reverse is the case as the inlet pipes are always full right up to the valves, any any charge in the amount of opening allowed the latter meets with an instantaneous response.

Another advantage claimed for it lies in the fact that sudden acceleration of the engine has no tendency to disturb the mixture as is bound to be the case when a throttle of the plunger or butterfly type is opened quickly owing to the sudden and great amount of suction to which the spray is subjected. The latter is also somewhat wasteful of fuel and an appreciable period is required for the carburetter to again adjust itself to the conditions. With the variable inlet alone, some of its advocates not recommending the use of an additional throttle at the carburetter, the increase or decrease in the amount of suction is gradual and the manifold forms a reservoir which always contains a supply of fuel. This feature permits of the engine being run at a very slow speed, and kept on the high gear down to a crawling pace, while for continuous running, particularly on up and down hill work, it is said to call for less retardation of the spark which tends to keep the engine somewhat cooler.

The Bishop and the Automobile.

France, the home of many an amusing little comedy of real life, has just produced another, centering about a motor car, a priest and a donkey. From the days of La Fontaine, down to the time of Le Mule de Pape, and L' Abbe Constantin, there always has seemed to be a certain relevancy between a French cure and a donkey, but the motor car is a part of a different sphere, so it would seem. And so, indeed, it seemed to a certain Bishop who rebuked the Abbe Cavaille, for employing such an "unclerical method of locomotion," as an automobile. Whereupon the good abbe, in a spirit of worldly humor, hitched his faithful donkey to the front of his new car and paraded the streets of Agen to the accompanying howls of delight of the people. The bishop, however, considered that this act had "thrown ridicule upon a superior," and therefore promptly unfrocked the priest. The latter is now earning a livelihood through the returns which he derives from the sale of a certain foot-warmer, of which he is the patentee.

Pettiness in Police Traps.

In ways that are dark and tricks that are vain the heathen Chinese do not outclass English country constables. One of the most high-handed police methods of satisfying the craving demands for graft has been brought to light in Alcester, Warwickshire. Just over the bridge from Birmingham, the industrious police covered the roadway with sharp stones, so that all motorists who had any regard for their tires were compelled to drive on the footpath. The police hid in the bushes and came out and arrested the motorists for violating the law by driving upon the path. This condition has been going on for nearly a month, having just been discovered, and now it is understood that some of the prominent automobile organizations will take steps to prosecute the over ambitious constables and incidentally have the cause of the trouble removed.

To "Make Books" on Grand Prix.

France has finally achieved the object sought for in her attempt to stifle the Vanderbilt as well as the Bennett cup race, for in the Grand Prix there will be 25 French cars and but nine of two other nationalities, German and Italian. The event is have a purely Gallic flavor throughout, as a betting tent, such as are erected at French racecourses under government control, is to be a feature. The proceeds will go to the Automobile Club of France, which is already said to be notorious for the amount of money that is won and lost at cards and roulette games run by the organization at its club house.

TROUBLES AFTER DARK

How a Light may be Extemporized—Benefits of Pocket Lamps.

A sense of helplessness overcomes one when caught on the road on a dark night. The breakdown that has brought the car to a standstill may be of the most trivial character, but unless it happens to be of a nature that may be remedied by feeling around in the darkness, the prospect is certainly not encouraging. Matches are of little assistance even if they could be freely used and no driver with a modicum of common sense cares to undergo the risk of burning up the car even with the possible alternative of spending the night out in the woods. Some comfort may be gotten from the kerosene headlights or the taillight, but it is small indeed. It is not altogether safe to bring them too near the engine and more than that they can only be used with the burner in a certain position; any attempt to direct the light upon the object undergoing the operation only ends in fouling the lamp and extinguishing the light.

Those who do much driving after dark cannot do better than to include in the tool kit a piece of incandescent lamp cord several feet in length with a six volt testing lamp connected up at one end of it. The bulb should be provided with a reflecter and a wire guard; the amount of light given is small so that it is necessary to utilize every bit of it and the chances of breaking the frail glass are so numerous that it will not last long unless protected. This can be connected to the accumulators where the latter are carried and the light used for an hour or more without running the battery down overmuch unless the latter is near the end of its charge. Such a "portable" may also be wired to a set of dry cells, but it is not advisable to use the light for more than a few minutes at a time and the less the better, as it will quickly run the battery down. While not as powerful, it is none the less an equally valuable expedient to provide one of the dry battery pocket flash lamps that may be had for a dollar or less. This represents a self-contained outfit of the same order, except that on account of the necessarily small size of the battery the light can only be called upon intermittently, or in the shape of momentary flashes. Otherwise the current will soon fail and the light grow so dim that it will be worthless. Still these flashes are superior by far to the naked flame of the match or the kerosene lamp and as the outfit is capable of producing several thousand of them before giving up the ghost, they will usually suffice to locate and remedy the trouble. The motorist who goes abroad after dark is at a disadvantage unless provided in this respect.

A horse, a motor and a man, may be overloaded variously, but one drop of oil never can be made to do the work of two.

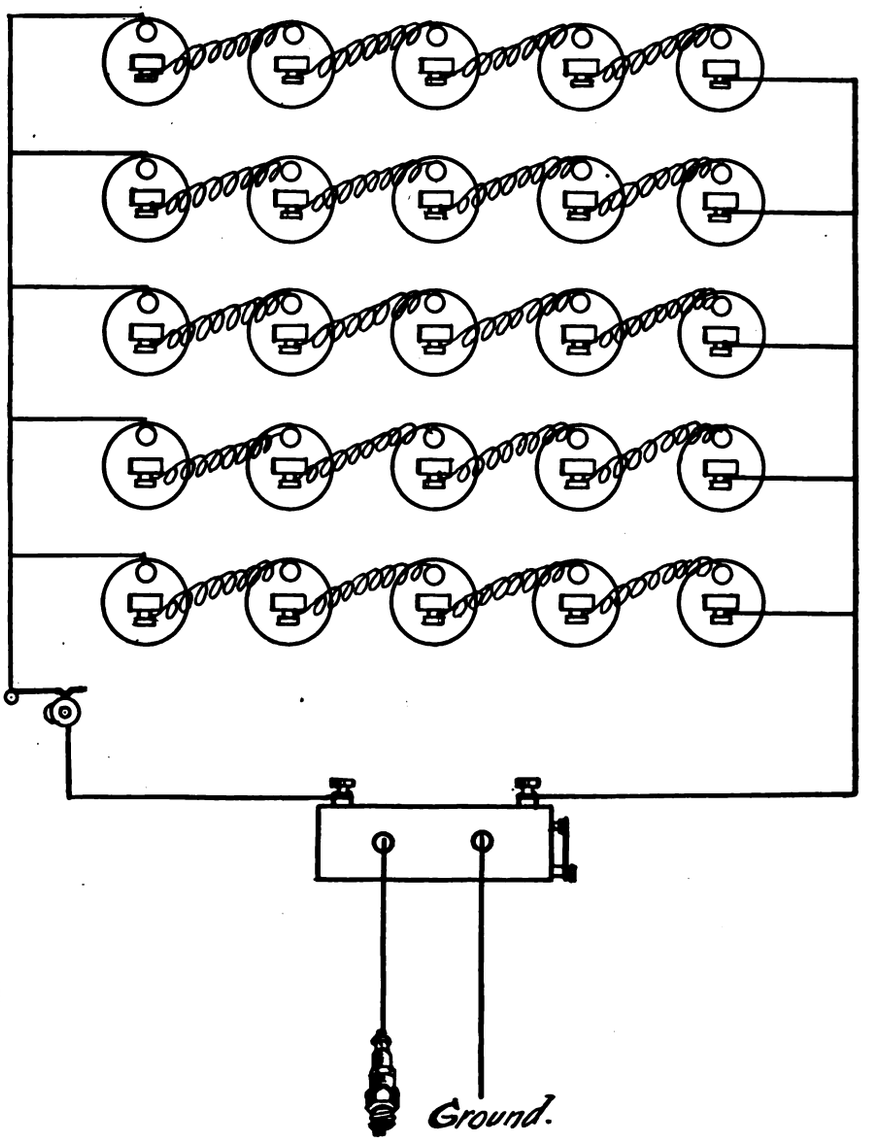
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HOW TO SAVE BATTERIES

First Cost is Slightly Increased but there is Economy in the End.

Extended experiment with the dry cell has shown that ignorance of its peculiarities has been largely responsible for the poor service obtained. It was not alone improvement in the cell itself that was required, but a knowledge of just how to handle it in order to get the best results. Unceasing search and investigation on the part of battery makers has resulted in improving the dry cell out of almost any semblance to its prototype of ante-automobile days and persistent effort on the part of the user has brought with it a knowledge of how to utilize the battery to the best possible advantage. But that this has not become widespread is evidenced by the more or less frequent inquiries received on the subject, of which the following is an instance:

"On page 931, issue of Jan. 18, 1906, of the Motor World, it is stated that 25 dry cells wired in series of five and connected in multiple constitute the best method of using dry batteries on an automobile. Now as I understand the method of wiring, you would have running through the coil—supposing each dry cell to have an output of 20 amperes at 1½ volts—7½ volts and a current of 500 amperes to draw from. Will you please publish a diagram of the method of wiring you refer to and mention the voltage through the coil as the makers caution the use of no more than six dry cells at one time. Would this manner of wiring be injurious to the coil? Is it strongly advised where dry cells are used for ignition with the high tension current?"



To make matters clear, what Henry Souther said regarding the ignition tendencies of the year, which appeared in the New York show number of the Motor World is worth reproducing. "One form of supply of electricity is badly overlooked, or rather the application of it," said Mr. Souther. "It is well known that cars using the dry battery are supplied with two sets of four or two sets of five with a switch to throw from one to the other when one set is exhausted. They have the voltage and amperage of four or five cells and the length of life permissible by such a number.

"Years ago the Columbia cars were supplied with 25 cells in multiples of 5 connected in series, giving the voltage of 5 cells and the amperage of 25. This means that each individual cell was drawn upon at any given moment to an exceedingly small degree; so small that its life was lengthened to a point where it would last as long as though it were not in use at all—in fact, under this system the dry cell dies of old age and not of use. Moreover, at the end of a 200 mile run, with this system of using batteries, they are just as strong as after one mile, not being in the least run down or exhausted. It may be asked, 'What will be done if they do run down?' You have no extra set on which to switch over! But such questioners forget that the life of such a set of cells is measured in months and not in miles, and that with ordinary good luck a set wired in the manner outlined will last the season through without thought or attention. The cost is at first a little greater ($2 to $3), but the decrease in annoyance is infinitely great and those who try this system find that ignition troubles always cease where the battery is concerned."

Taking up the different points contained in the inquirer's communication, it may be said that he is correct in assuming that the method of wiring in question would give 7½ volts and 500 amperes on the assumption that each cell had a capacity of 20 amperes at 1½ volts. This, however, represents a maximum seldom attained in practice, as after a comparatively short time the capacity of the cell will have dropped to a point between 15 and 18 amperes, and with the system of wiring advocated it will remain at this for some time. The voltage will also fall off slightly, not exceeding 6.75 or 7 volts for any of the units of 5 cells in series. This would represent the voltage passing through the coil, less the resistance of the circuit intervening between the battery and the coil. There is so small an amount of wire in such a circuit and it is usually made of such a size that the resistance is a negligible quantity, but this will not be the case where there are poor connections, especially for the ground return. The terminal of the ground wire should be placed as close to the other end of the circuit as possible, so that no bearings or joints whether the frame of the car or the engine come between. The existence of anything of this kind tends to increase the resistance and overload the battery to no purpose.

Granted that the wiring and connections are in good order, the voltage will be approximately seven and the current supply available will be 300 to 400 amperes. As the consumption of a properly adjusted coil is but ¼ to ½ ampere it will readily be

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evident that the cells should under such conditions literally die of old age in spite of steady usage. In issuing a caution against the use of more than six dry cells the coil makers have reference solely to that number when connected in series. Coils for automobile use are wound for a voltage of six to eight volts and any excess of the latter is apt to damage the windings by breaking down the insulation. The maximum voltage of six dry cells would be nine volts, but this does not represent sufficient of an overload to do any damage and as already mentioned, this would drop at least 10 to 15 per cent. after the cells were a few weeks old. Thus the prohibition is not so much against the number of cells employed as the manner in which they are wired. Only the capacity of the car to carry them conveniently makes a limit to the number that may be used in series multiple, as shown by the accompanying diagram illustrating the connections. But as in everything else, there is a limit beyind which it is neither practical nor economical to go' in the attainment of reliability and several years experience has shown this to be represented by 25 cells in the present instance.

This is not an unalterable limit, however, as in cases where the coil is wound for a lower voltage, six volt coils being employed on many runabouts and light cars, the number of cells in series may be reduced to four, using six units of four each in series multiple instead of five. This will reduce the total number of cells to 24. Further reductions may be made where lack of space prohibits the carrying of such a number. Makers of dry cells strongly recommend the employment of at least two sets of cells wired in series multiple and the benefits accruing from this practice increase in proportion to the number used until the practical limit of five to six sets is reached. Beyond this it does not pay to burden the car with batteries nor to invest in them, for that matter, as all will become exhausted at the same time.

Speed on the Spark Wasteful.

In the handling of a gasolene motor, it should be borne in mind that speed regulation should never be accomplished by the manipulation of the spark alone. The variations in the time of ignition are intended solely to secure the best results at any given speed and are wholly supplementary to and dependent upon the regulation of the gas. The speed may be varied by the use the spark lever, it is true, but whenever this is done, it is at the expense of wasteful performance, and involves considerable loss of power, or else an overheated condition.

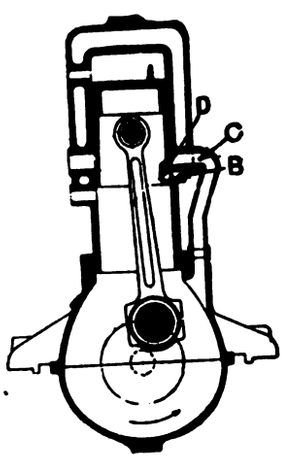
Where to Look for Trouble.

When a motor refuses to start without a deal of persuasion, look into the carburetter; when it refuses to stop until the gasolene feed has been cut off, look into the pump.

HOW KEROSENE IS USED

Ingenious Method of Warming the Cylinders that Permits Easy Starting.

One of the great difficulties connected with the application of the kerosene carburetter to the internal combustion motor is that in all the arrangements hitherto produced, the initial application of heat from an internal source has been found necessary. With the attempt to apply this method of power production to submarine vessels, of course the strongest objections were raised to the use of an open flame for any purpose. In a set of engines which the famous Korting Bros'. firm of Hanover, Germany, has been building, this difficulty, as well as that of starting, has



been overcome very nicely by the use of electricity.

A dynamo is coupled to the engines, and ordinarily serves for lighting the interior of the vessel and for charging a storage battery. When it is desired to start the engine, however, it is converted into a motor, and the crank shafts are turned over for several minutes in this way, prior to the admission of the first combustible charge to the cylinders. In the meantime, the air taken in is passed through the meshes of a fine gauze which is heated by passing a current through it, so that the cylinders become thoroughly warmed before the actual starting of the motor is attempted.

Aside from the starting feature, the motors are unique in being constructed in twelve-cylinder units, and in working on a modified two-cycle process, which provides for the complete scavenging of the cylinder after each ignition. In order to accomplish this, a D-shaped pocket is formed in one side of the piston, which, as it reaches the top of its stroke, for an instant throws the transfer port into direct communication with the outer air, allowing a small quantity of cold air to be drawn in and down toward the crank case. When the inlet takes place at the end of the out-stroke, this stratum of pure air is driven into the cylinder ahead of the main charge, scouring the residual gases, and thus reducing the dilution of the fresh charge.

The manner is which this is accomplished is shown by the accompanying sectional illustration in which the piston is represented as just completing its compression stroke. The depression D in the piston at this instant allows a small quantity of pure air to be drawn into the transfer port C through B an opening in the side of the cylinder, at other times closed by the piston walls. This air-seal, remains in the upper portion of the port until the opening of the cylinder is caused by the descent of the piston, when it is forced in ahead of the live charge, serving to scavenge the contents, and form at the same time a barrier between the burned and unburnt gases.

The Reversible Worm-Gear.

It has long been a mystery to those familiar with the characteristics of the worm in mechanics, just how the latter has been adapted to the propeller drive of the Dennis 'busses used on the other side. A worm of almost any pitch will drive but the reverse is not the case as the moment the worm wheel comes to a standstill the pinion meshing with it becomes locked and no amount of pressure on the latter will cause the worm to revolve. In view of this it will be evident that any attempt to coast the vehicle with the engine dead—using the engine as a brake, as it has come to be known, would result in the utter annihiliation of the worm and gear drive. In the instance in question this has been overcome by cutting both the worm and wheel at the same angle, viz.: 45 degrees; in addition the worm has a number of threads and they are cut of a very coarse pitch which permits of either driving the other.

The Rating of Gasolene.

A frequent source of confusion to the motorist lies in the method of rating gasolene according to the percentage values read from a hydometer. These values, instead of giving the specific gravity, as is not uncommonly supposed, give its equivalent measured upon a different and purely arbitrary scale which depends upon the make of the instrument used, the most common being the baume. This makes no essential difference so long as only readings taken on the same scale are compared. If it is desired to find the weight of a given volume of gasolene of known test, however, the equivalent specific gravity must first be found from some conversion table, and the value there obtained multiplied by 62.35, to obtain the actual weight per cubic foot.

No one ever thinks of blaming a watch if it stops, because it has not been wound for twenty-eight hours, and yet the average motorist whose accumulators give out on the road at seven o'clock of a rainy night, invariably says things about the maker.

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The Vehicle that Brings "Juice" to the Cripples



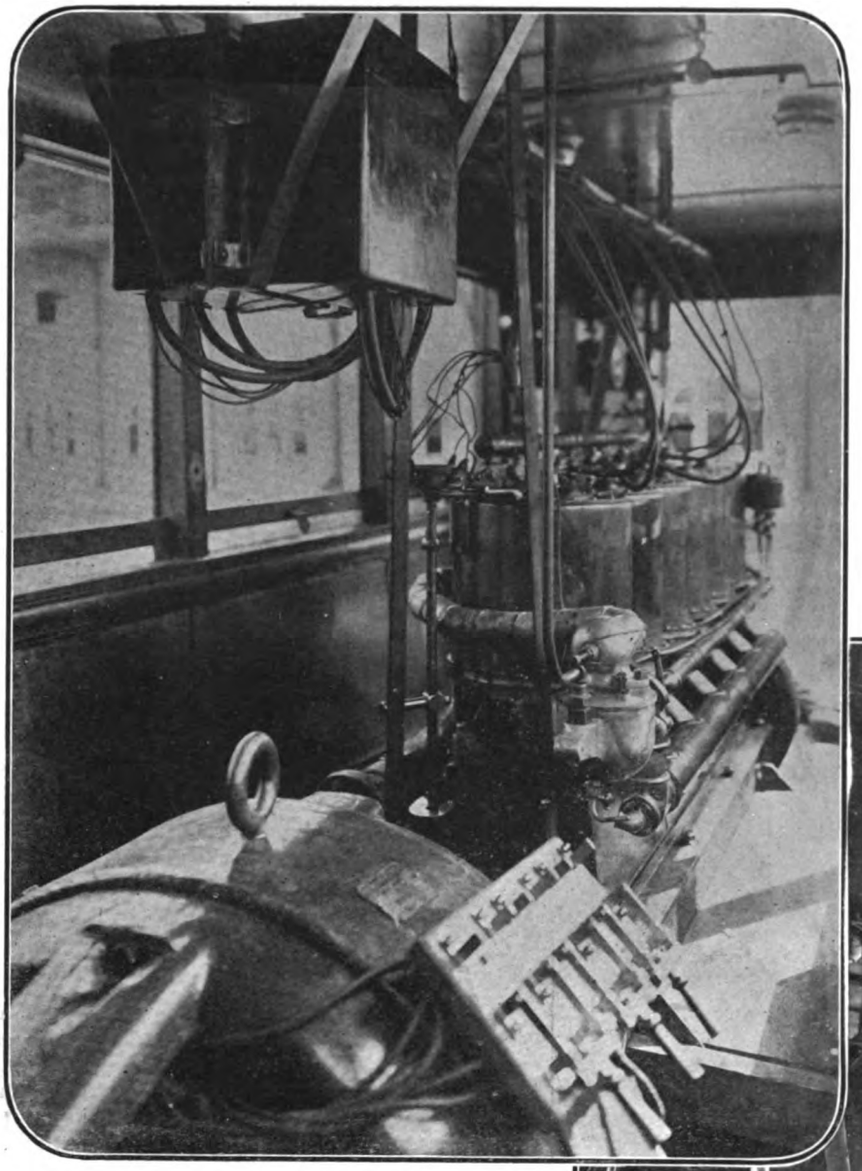
Inherent limitations have confined the scope of the electric vehicle within a somewhat narrow radius and this must continue to be the case unless radical improvements in battery efficiency are forthcoming. But as a means of extending their usefulness, particularly on occasions where it is convenient for the cars to stand idle for a period of two or thre hours before starting on the return journey, the New York Transportation Co. has recently constructed a portable charging plant which may be sent wherever required under its own power. As will be noted from the accompanying photograph, it takes the form of a somewhat ponderous 'bus down the center aisle of which is located the motive power. The total weight of the vehicle is between 10 and 12 tons and it is accordingly fitted with correspondingly heavy running gear.

The wheels are 53 inches in diameter and are shod with two four-inch Turner endless solid tires in the form of "twins" held apart at their center by a steel ring. This form of tire equipment has been found necessary not alone on account of the great weight of the vehicle, but in order to minimize the tendency to skid, which is one of the chief dangers to be guarded against in operating such a vehicle, whether in traffic or on the open road. In the latter case the risk of ditching the machine is incurred and owing to the very small amount of clearance between the two 10 horsepower driving motors and the ground this would in all probability result disastrously. This part of the car hangs within six or eight inches of the ground and precludes taking the machine over anything but smooth roads.

Interest naturally centers in the power equipment of the car and this consists of a six-cylinder engine of the marine type, built by Chas. Seabury & Co., which develops 75 horsepower at 800 revolutions per minute. It is coupled directly to a 50 kilowatt C & C generator from which current is used to drive the car when under way without the use of any batteries. In fact, the only cells carried are those used for ignition purposes. The cylinders have independent brass jackets in the form of an ellipse with sharpened ends and the engine itself is equipped with a flywheel at each end in order to increase the balancing effect. At the end shown in the photograph the ratchet gear on the flywheel is used for turning the engine over with the aid of a jackbar to start. As the engine is set upon the floor of the 'bus and extends but slightly above the level of the windows, special provision had to be made for cooling and this takes the form of two of the regulation bonnet-end coolers used on cars. They are placed end to end on the roof of the vehicle with a substantial sized water tank between them. On each side are ranged the fuel tanks and on the rear end of the roof is located the tool chest.

The bank of double throw switches shown on the generator itself is for the purpose of utilizing the current with the batteries under charge either in series or multiple. The switchboard proper is located at the right immediately at the entrance of the car with the necessary bank of resistances directly opposite. Owing to the limited amount of space available, compactness was the aim of the designer where this essential of the charging plant was concerned and that this has been attained is evident from the photograph illustrating the board. Across the top are ranged the measuring instruments for the charging current, while the switches controlling the outlets of which there are twelve are ranged one above the other on the left hand side of the board. The ammeter on the left is connected in the circuits represented by the six upper switches and that on the right with the six lower, the amount of current being averaged for each bank. The voltmeter is located between the two ammeters and is normally out of circuit. There is a one-inch copper stud for each outlet and by means of a socket plug on the end of a flexible cord the voltage at which any one of the cars on the twelve leads is receiving current may be readily ascertained. On the

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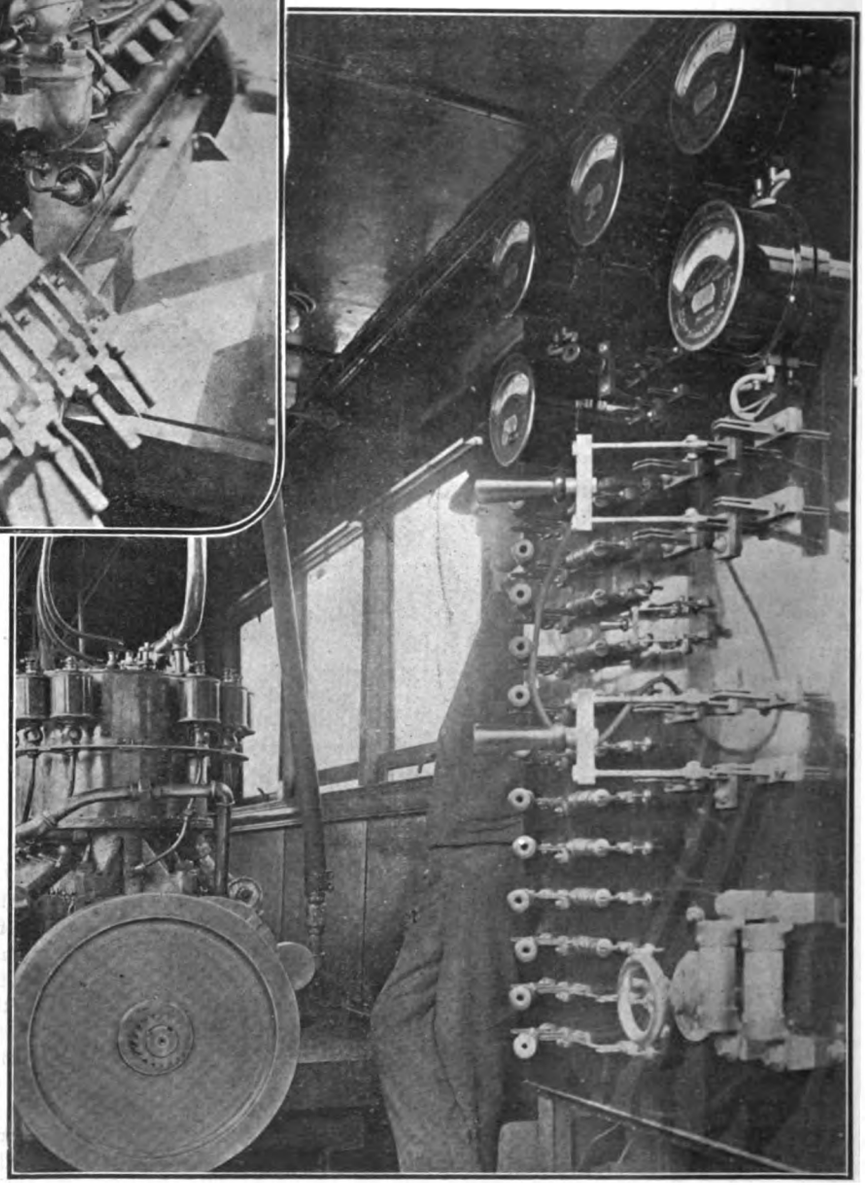


THE POWER PLANT COMPLETE; HANGING BOX CONTAINS THE COILS.

right hand side of the board are the main switches for each bank of six outlets, and the fuses.

The generator voltage may be varied from zero up to 230 volts for charging purposes, the driving motors of the vehicle being run at 150 volts, the maximum speed not being much in excess of eight miles an hour. This is not a detriment, however, as the vehicle is not designed to respond to emergency calls, but to perform what may best be termed temporary station service. That is, it is to be sent on in advance to a point where there are to be a number of electric vehicles in use. Thus far its principal service has been in attending meets at the Belmont Park race track to which an electric cab service is maintained during the racing season.

On such occasions it practically answers all the requirements of a permanent charging station and being specially designed for this service is very much better equipped than any local lighting plant is apt to be for this class of work.



THE SWITCHBOARD AND STARTING END OF MOTOR.

Why they Discarded Independent Cylinders

"Imported" is probably the best reason that existed for the copying of the idea of casting the cylinders of the multi-cylinder engine independently, which took such strong hold of designers generally a little more than a year ago. One of the foreign concerns that jumped at the idea when it first became public now announces a return to the old standard and will henceforth turn out all engines with the cylinders cast in pairs for the following reasons: Because there is less space required and in consequence a smaller bonnet may be used; the engine as a whole is lighter, there are considerably fewer water pipes and connections; the water circulation is more efficient and the engine is more rigid.

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HIS HARD LUCK STORY

It Entails Doubt of the "Poor Man's Car"—But he is at least Specific.

"People who have been wishing for the poor man's car ever since the automobile became a practical reality and some of them say they are only waiting for the advent of the 'cheap' car before investing," said a motorist of experience to a Motor World man a few days ago. "But Heaven save me from anything cheaper than some of the so-called popular priced cars that are turned out right now when the automobile is considered the plaything of the ultra wealthy by a large part of the unthinking public," he continued. "And the cars I have in mind are not the product of a mushroom concern or anything of that sort.

"In just what particulars is it cheap?" he replied in response to an inquiry. "I see you're anxious to pin me down to facts and figures and I can give them to you, although there are so many that it is hard to know where to begin. If all the accusations made against the automobile and its builder consisted of facts and figures instead of rambling, general indictments that have nothing whatever back of them, there would not be many, for they won't stand sifting. But to get to the story.

"To cite one instance in particular, take the cam. It has always been a vulnerable part of the machine in question and in the early days of the latter needed frequent replacement. It has been improved in that particular, but like every other part of any mechanism that is subject to constant wear, a new one is a necessity at times. The machine I speak of is very hard to start without relieving the compression as it only has one cylinder and it was equally hard to turn over whether the compression relief were operated or not. I found that the cam shaft bushing was so worn that it let the cam drop considerably at a certain portion of the revolution and that the spring of the compression relief was practically dead. I secured these replacement parts and put them on with no visible improvement. My experience in turning over that engine has given me an exaggerated idea of my strength because I have twisted the starting crank up into a curleycue two or three times now. It consists of nothing more than a half-inch wrought iron bar tapered on the end and I'm not sure whether it will stand bending back again or not; if it doesn't it will simply mean one more part that I have to replace and every experience I have with the parts department of the branch house in this city makes me more disgusted. As a result of being so powerful on the crank I have sheared off the pin that held parts of the starting gear together and snapped off the 9/16ths inch rod of iron that braced it. No replacement to be had so I was compelled to make another out of a piece of bar iron."

"But what about the cam?" was interpolated.

"I'm coming to that; all this other is so interwoven with it that you have to hear it all to appreciate the state of affairs leading up to it. After the replacement of the cam shaft bushing failed to make any improvement I decided to replace the cam also and went to the branch house. I had been there several times before on similar errands and it only required one visit to find out that the 16-year-old boy in charge of the stock of parts didn't know a cam from a bushing, so I was in the habit of going in and picking out what I wanted. It saved time and trouble. On this particular occasion there was a brand new boy in charge. I doubt if his predecessor had ever seen the chassis of the car of which he was employed to hand out duplicate parts but his successor had never noticed one of the cars on the street in all probability. I went over to the box of cams and picked out one; fortunately for me I looked at it closely, although it didn't require more than a glance to see that its existence was all a mistake. It was so lopsided that its deformity was apparent in an instant. I tried another and for the sake of comparison held them side by side; there was almost an eighth of an inch difference between them; neither the inlet nor the exhaust lift tallied by almost that much. On one the inlet tapered to quite a sharp wedge-like end; on the other it was blunt. The same thing applied to the exhaust and worse than that, neither of them were in the same plane. It is almost impossible to conceive how an engine timed to run with one of those cams would perform at all when the other was put on it. I tried a third and it was still worse and I kept on until I had half a dozen laid out in a row on the bench. They were without exception the most ill-assorted lot of misshapen pieces of metal to be called automobile engine parts that I ever laid eyes on. I have gone through automobile factories and have always noted the painstaking care that is devoted to turning the camshafts of the large motors. Since seeing these I have certainly been curious to learn by what process they are manufactured, for without exaggeration they look like so many pieces of putty. They seem to bear the marks of a coarse file in unskilled hands and in a box of two or three dozen it was next to impossible to find any two that were alike. I finally came across one that was acceptable because it looked good; it was bigger than the others and bore less evidences of lopsidedness, or of having been filed away with a horseshoer's rasp. But even at that it was far from perfect for the hole in it had been so carelessly drilled and tapped that a large burr was left at the opening, making it out of the question to start the set screw in it without the aid of a file and tap.

"Why, man alive, the farm gasolene engine that is sold by the Chicago mail order houses at department store prices is not so poorly made as that; if it were the farmer would have to throw it on the junk pile the moment it needed any replacement parts. It is utterly inconceivable to me what process of manufacture those parts can go through to turn them out so diversely shaped.

"No, I haven't the slightest idea whether the one I have invested in is going to improve the running of the engine or not, because I haven't had time to put it on as yet. I have absolutely no guarantee that it will, because the only thing I have had to go by is its appearance. You can imagine what my experience would have been if I had not gone there personally. The stock boy would have picked out the first one that came to hand and I would have received something worse than what was already on the engine after having waited two or three days for it. You may think this is an isolated instance and considerably exaggerated on that account, but quite the opposite is the truth. A friend of mine who owns another make of so-called popular priced car happen to break the rocker arm of one of the valve operating mechanisms of his motor and sent for a new one. When it came it required half a day's work by a mechanic to fit it. At 60 cents an hour the repairman's bill was more than double the original cost of the part. I could multiply instances for you without end. Of course, with ignorant stock boys, the first thing that comes to hand will do and anything is good enough for the man who orders things from a distance. He's a long way off and even if he does kick, his long range complaint can't do any harm. Whether a car is cheap or not, it is time that the manufacturer saw that its parts were interchangeable.

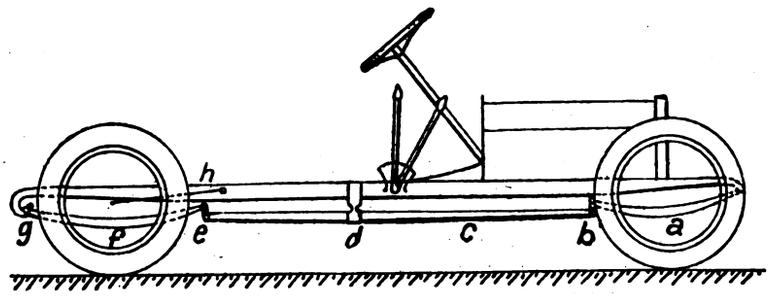
"The man who is confidently looking forward to the advent of a car that will be within the reach of a great portion of the public had better go stow his aspirations in that direction for some time to come, according to my way of thinking. I can see no other possible result than wholesale dissatisfaction with a consequent setback for the ultimate appearance of the millenium in the shape of the 'poor man's car.' See what over cheapening did for the bicycle and you can get some idea of what the same process of shaving and skimping will do in the case of the automobile with its vastly increased number of small parts which require accuracy in their makeup above all things. Take my word for it, the cheap car has been with us all along and unless there is an inordinate profit in making cars that way the manufacturer who thinks of making them cheaper still had better not burn his fingers. A well made car at the same price would be a vast improvement; let cheapening go hand in hand with quality and it will be all right, but I'm afraid that's too much to hope for."

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TO REDUCE THE SHOCKS

Novel Method of Mounting the Motor and the Promise which it Holds.

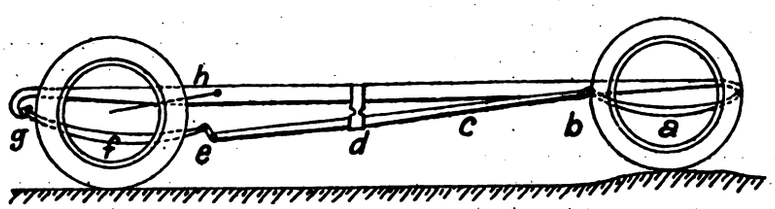
It may be said that there are two methods existent of attaching the frame of a motor vehicle to the axles, the one being to mount each end upon its particular axle independently of the other, and the other to rest the center of the frame upon a long spring which spans both axles, with or without the use of additional supplementary springs. The latter method is, of course, confined solely to vehicles of the light runabout class and those in which are to be seen some vestiges of the reach-rod running gear. Obviously, with the first arrangement, when striking an obstruction in the road, first one set of springs is called upon to meet and resist the shock, after which the other undergoes a similar strain. With the second arrangement, the effect of a shock upon either axle is borne to a certain extent by both. It has been proposed, first in this country, and latterly in France, to provide for the first arrangement in somewhat modified form, a compensating device by means of which the load shall be carried in part by each set of springs, and the effect of sudden shocks in this way distributed more widely throughout the structure of the chassis.



The method of accomplishing this lies in the placing of a compensating lever on either side of the car, one end of which is linked to an end of each of the main springs on the same side. A little over a year ago, patents were issued in this country for a system in which this principle was utilized, the intermediate connecting link in this case being a semi-elliptical spring instead of a lever. Hence, the recently patented application of the lever by the French house of Turcat and Mery, hardly merits the novelty which is commonly accredited it in the French prints. The method of mounting, together with the action which it provides, are clearly shown in the accompanying illustrations, one of which pictures the car with one wheel taking an obstruction.

As is evident, the front axle is attached to the frame by means of the spring a, the rear end of which is coupled by means of the links b to the rigid balance rod c, which in turn, is pivoted about some point of attachment to the chassis, as for instance, at d. The other extremity of the balance rod is coupled to the forward end of the rear spring f, by the links e, the attachment to the chassis itself being at a bracket d, suitably placed. In the case of a chain driven machine, the radius rod would take up the position shown at h. The point of attachment and oscillation of the balance rod at d, is chosen in such a way as to distribute in proper proportions, the load between the front and rear axles, and give the suitable relative lengths to the arms of the rod.

When one of the wheels encounters an obstacle, as in the second of the two illustrations, the reaction is transmitted through the intermediary of the balancer to the spring fixed upon the other axle, and the adjacent wheel is given a displacement oppositely, or at least, a tendency toward an opposite displacement, which reduces the consequent settling of the chassis, besides, of course, giving the added resiliency of the additional spring. In this way the reactionary plunging of the car being distributed through the entire suspension system, is less apparent locally, and hence, running conditions of the machine are greatly ameliorated.



It is evident that this method of connecting the suspensions of the front and rear axles should, in a measure, at least, produce somewhat the same sympathy in action which characterizes the performance of the single spring mounting which has been popularized in the light class of vehicles. At present, the result of any shock upon the two axles occurs in such rapid succession that, even with the most successful of shock absorbing devices, the effect upon the vehicle is to produce a fore and aft pitching which is distinctly unpleasant, and injurious as well. Moreover, it is apparent that no sort of contrivance can serve to lessen this effect to any great extent, certainly not to obviate it wholly, since the remedies applied to the individual axles cannot remove the cause. By interconnecting the two, however, it would appear that a most salutatory effect could be secured which should serve to diminish, if not entirely to remove this great disadvantage of the system in present vogue.

Utility of the Long Screw Driver.

Next to an S wrench there are few handier things included in the assortment of tools that should grace the box of every car than a long screw driver. Its uses are multifarious and the one implied by its title does not begin to express the dozen or more to which it may be put. Its blade should be twenty to twenty-four inches in length and well embedded in the handle, which is but another way of saying that it should be of good quality. Good tools do not show their worth on first acquaintance; quality and honest workmanship in tooldom are expressed by plainness, while cheapness carries with it an excess of finish that has nothing more durable behind it: yet double the price is asked for the common looking wrench or screwdriver and this often leads the buyer astray. He pays half the cost of a good tool for polish and varnish and an emergency on the road finds him with half the tool embedded in the engine somewhere and the other half in his hand.

Granted that the screwdriver is good steel and well handled it will be found of great assistance in reaching places unattainable in almost any other way short of dismounting the obstructing part. It is universally considered to be a bungling workman who will resort to a screwdriver and a hammer to start a nut and moreover nuts that are treated in this fashion always bear a reminder of the operation in the shape of burred and scarred faces, but there are occasions on which the use of any such means at hand are legitimate even though it be detrimental to the part worked on. As a means of reaching out of the way places where the insertion of a hand is out of the question, the long rod of metal with its flattened end and good handle will serve the purpose better than anything ever devised. Unfortunately there are many things of this kind to be done on a car for which no special tools are made, beside which the requirements of each of these operations vary so greatly that if tools were to be made for every one of them, the car would be loaded down in carrying them all. There are few which the long screwdriver will not prove an aid in accomplishing and it is a tool that has few equals for general utility.

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The Gasolene Railway Car Reaches New York



Although the West has seen several of them, it was not until Union Pacific gasolene coach No. 7 came to New York a week ago, that Easterners set eyes on the first vehicle of the sort, of which so much had been printed and said.

The pioneer in this work of investigating the advantages of the internal combustion motor to railway traffic, at least, insofar as actual service tests, and trial service are concerned, has been the Union Pacific Railroad, which has built and equipped no less than seven different cars, each combining a measure of improvement over its predecessors, and has finally reached a point where the outlook is so hopeful that the erection of special shops for their manufacture is contemplated in Omaha, Neb. The cars already in use have been applied with profit to branch and suburban lines where light traffic and the need of rapid acceleration are the characteristics.

The salient features of the cars so far built under the supervision of W. R. McKeen, Jr., superintendent of motive power and machinery, comprise, externally, a coach form, not unlike that of the ordinary service cars, except that the front end is sharpened to a point, to relieve the windage, while the rear end is rounded to a smooth curve. In the earlier cars, the entrances were at the rear from either side, but in the newer models this has been dispensed with and a flush-door side entrance with concealed steps substituted. The cars run upon two four-wheeled trucks, the forward one driving through the front axle. The roofs are of the arched pattern, with a special type of ventilator, and meet the ends and sides in smooth curves. The entire construction is steel, and the bodies are very strongly built.

The motor equipment consists of a six-cylinder vertical motor, connected with the driving axle through the medium of a friction clutch and change-speed gearing. It is started by compressed air, which also is used for the brakes, and, by an ingenious arrangement, the jacket water is circulated through radiator pipes in the car during cold weather, for heating purposes.

The main portion of the body is fitted with transverse seats giving a total carrying capacity of fifty-seven passengers. The ceiling is domed and lighted with opaque panel lights illuminated by acetylene burn-

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ers, while the round, porthole windows are dust and air proof. The fittings are all in good taste and well fashioned, and the effect is decidedly luxurious. The cars are fifty-five feet in length, and weigh but 56,000 pounds. The driving wheels are 42 inches in diameter, the trailers 34, and the motors are rated at 100 horsepower.

The latter are geared to drive over a maximum grade of four per cent., and the car attains a maximum running speed of approximately forty miles an hour. The acceleration is better than that of an electric car, and the brakes furnish sufficient power to stop it in less than 120 feet from half speed. Under test, other cars of standard construction have been hauled, good results having been obtained with one and two trailers. The intention is, however, to use them singly under ordinary conditions, running under comparatively short headway, at an average speed of about thirty miles an hour.

The accompanying illustrations show the latest of the cars to be turned out, and bring out the unusual appearance which is given by the flush doors and round windows. The compact arrangement of the machinery also is clearly shown, together with the mechanism of control. In the interior view, the location of the ventilators and lights, as well as the way in which they have been utilized in the scheme of decoration is apparent, and the comfortable and roomy arrangement of the seats.

Departure in Individual Clutches.

A decidedly novel twist has been given to the idea of the individual clutch transmission, in the application of a single expansion ring to each of several clutch members successively by translating it along its shaft. The scheme in itself, comprises the usual various sets of gears arranged to give the desired speed ratios. The driving member of each set is formed integrally with one of a set of concentric sleeves mounted about the driving shaft, and terminating in a series of annular rings, one for each set, all of which have the same internal diameter. The single clutch member is splined to its shaft, and aside from the control to which it is subject in expanding or contracting, it may be moved along its shaft latterally to engage with any desired member of the separate clutch rings. This versatile application of the master clutch principle to the individual clutch arrangement is credited to an English inventor, and is being marketed under the name of the Stiles Patent Change Speed Gear.

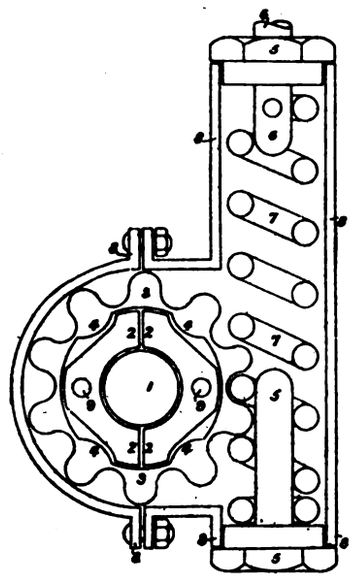
One Cause of Carburetter Trouble.

It not infrequently happens that the spattering of oil upon the gauze screen covering the air intake to the carburetter results in the accumulation of a film of dust which so cuts down the proportion of air to gas as to seriously hamper the action of the motor. The remedy is obvious, but the resulting complication is sometimes extremely difficult to locate.

DEPARTURE IN WORM DRIVE

Ingenious Combination of Spring Transmission and the Objects Served.

It would appear that the principle of the worm drive has taken quite a hold upon British inventive genius, for by far the greater majority, if not indeed all of the applications of this principle to motor car propulsion have come from that source. One firm has actually gone into the manufacture of several types of car employing worm drive, while several patent specifications have been taken out either privately or in the interests of others, which look toward its application in one form or another. Quite the latest of these, and one which is by far the most novel proposal which has been brought to light for many months, is the subject of the Beech patents, recently granted, and contemplates besides the worm drive, the combination and application with it of the spring transmission principle for relieving the shocks of starting and stopping which are so very destructive to the mechanism of the ordinary machine.



In fine, the driving worm is itself the spring of the flexible drive, consisting of nothing more or less than a stout spiral spring of even pitch which is meshed with a specially constructed worm, and being rotated, delivers the power through it to the axle upon which it is mounted. The worm gear itself, constitutes a friction clutch which serves to grip the shaft for forward motion, giving the required driving action, while in case the car over runs the drive, or it is desired to coast, the clutch is released, permitting the axle to run freely. A further application of the idea, permits of doing away with the differential, making a driving worm at either end of the live axle serve its purpose by means of the fast and loose drive which it allows.

In the accompanying illustration the driving spring is shown in section, being tightly enclosed in the casing 8, which also is extended to cover the gear and the axle. The driving shaft 6, is positively attached to the spring 7, causing it to turn, while its other end is supported in the head 5, as shown. The worm wheel 3, on the other hand, is formed as an annulus having a series of four cam faces, 4, on its interior, which engage the corresponding faces of a pair of clutch blocks, 2-2, which are pinned in place at the points 9. The effect of any force applied to the worm is to crowd these blocks against the surface of the shaft 1, causing it to turn, the counter effect of any force applied through the axle itself, being to allow the shaft to turn freely within the gear.

By applying one of these driving gears to each end of a split live axle, it is evident that the action of the outside wheel in rounding a turn would be to overrun its drive, which the arrangement would readily permit it to do, and by which means the necessity of a differential would be entirely done away with. Moreover, as the parts are entirely enclosed, simple, and by no means cumbersome, it would appear that as far as those considerations alone are concerned, the system would present considerable advantage over the existing types of differential axle.

Viewed from a casual standpoint, however, the arrangement seems one of questionable merit, in that the flexibility of the driving spring, in which no small part of the success of the device seems to reside, would not simply furnish a means of absorbing the shocks of starting and the heavier road shocks which are extremely injurious to the mechanism of the ordinary car, but would also serve to alter its pitch. On this account, the gear must necessarily be cut to liberal dimensions, and even then, under extreme conditions, it is conceivable that some interference of the teeth might be encountered. Also the method of clutching it to the shaft by a simple friction grip, would appear to be unreliable in its nature. The whole contrivance, however, presents such a radical departure from tradition, that it is worthy of investigation.

When Fitting a New Valve.

When fitting a new valve to a motor, care should be taken to see that the stem is cut to the proper length as otherwise, when it becomes heated under the effect of the motor's action, it will lengthen and fail to close properly. The proper amount of clearance between the end of the stem and the tappet should be gauged by the ability to slip a single thickness of heavy wrapping paper between the points. This test should be applied when the motor is cold.

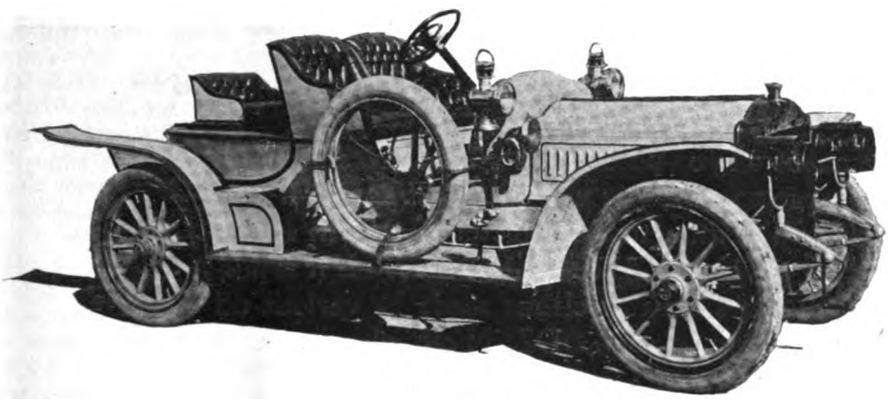
Where Red Tubing is Advisable.

When testing the carburetter or making any temporary connections in the gasolene line in which flexible tubing is used, it should be remembered that red rubber tubing is less affected by the fuel than the white varieties.

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The Thomas with Turtle Deck.

There is scarcely a car made to-day in touring form which has not its practical counterpart in the shape of a touring runabout. Some of them consist of a simple double seat with sloping "turtle" deck at the rear, capable of holding a good quota of spares and tools, while others are furnished with a seat for the mechanic, as well as a somewhat smaller amount of storage space. Quite the latest thing in this line, is the disappearing seat in the rear



THE THOMAS RUNABOUT.

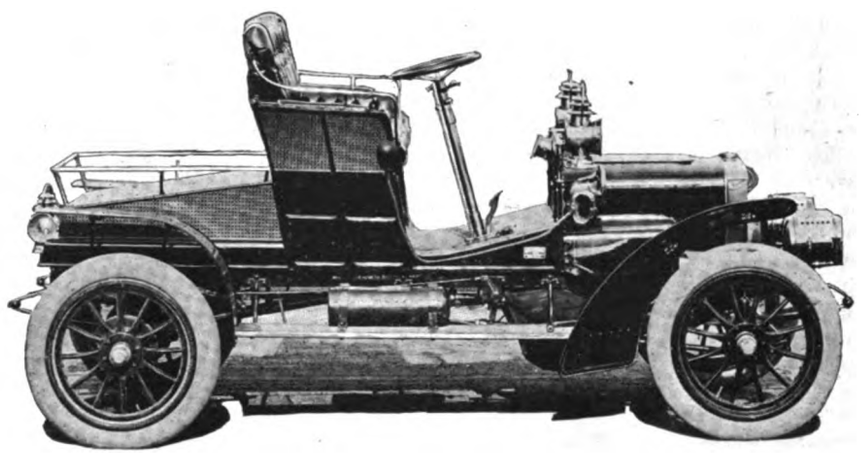
which, on occasion may be turned up to form a comfortable position for the "extra" man, while, when not in use, it can be folded away into the interior, leaving a smooth deck surface, without indication of its existence. One of the most recent of this type to make its bow to the public is the Thomas Flyer runabout, which is here pictured.

Like most of its class, this machine has the same chassis mounting as the regular line of Thomas Flyers, and, indeed, it is perfectly interchangeable with the regular stock body, or with either of the closed bodies which are made for the Thomas cars. The front seat is divided, and the disappearing "rumble" lies flush with the deck when folded in. The latter, which is perfectly flat, has at the extreme rear, and under the small seat when raised, a compartment sufficiently large to contain a small steamer trunk of special construction, or which, being perfectly well protected in every way, may be utilized for the carrying of luggage when traveling. The machine presents a particularly neat and rakish appearance which is sure to please the user, and besides, without the large tonneau which characterizes the regular type, is very well suited to town and cross country driving.

Northern with Warm Weather Body.

More this season than ever before will the ingenuity of the body maker be taxed to the utmost in the evolution of new effects, both in style and finish. In general type, the lines already have been pretty well laid down for the year, but the time has passed when each owner will be content with a conventional "carrosserie," no matter how effectively it may be gotten up, and therefore the individuality of both him and the designer will be growing more and more apparent as the season progresses. Not simply will this be apparent in the more luxurious types of closed car, but also in touring and runabout models, and the ultimate effect will be a great stimulus to the car manufacturers to produce as wide a variety as possible in body design in catering to the satisfaction of their customers.

One of the first examples of this variety which is almost certain to crop out, is to be seen in the new Northern runabout body which has just been fitted to the standard twenty horsepower chassis. As is shown in the picture, the general lines are in



NORTHERN WITH BASKET BODY.

thorough accord with the conventions of the 1906 runabouts, yet possessing a refinement which is not seen in many. The panel surfaces are done in the imitation basket work finish which has seen so great popularity in carriage work for traps and phaetons, and its application here, though not wholly new in motor vehicle work, should prove especially appealing to those who desire a light and handy appearing machine for knockabout and town work.

The mounting is the regular Northern chassis in every respect, double-opposed motor, planetary gearing, jump spark, and 100-inch base, and the effectiveness of placing so light a body upon it, should at once be apparent in its road performance. The model is in no sense of the word a substitute for the regular equipment exhibited earlier in the year, but is designated as a "special," and as such, will likely find a use in increasing the variety of machines on the road.

The Right Tension for Clutches.

It is a great mistake to use too stiff a clutch spring as it hinders that delicate manipulation of the pedal which is the basis of all good driving. The tension should be just sufficient so that no slipping will occur when climbing a steep hill—that is to say, under the most difficult running conditions which are likely to be encountered. If an excessive tension of the spring is required in order to secure this, it should be taken as a token that something is amiss with the mechanism. Even a slight amount of disalignment, improper conditions in the friction surfaces, or poor adjustment in some way may be accountable for this, and should at once be remedied. The desirable thing is to secure the greatest amount of driving effort at the clutch with the least requirement of power at the controlling pedal.

Remedy for Squeaking Springs.

Not infrequently an annoying squeak begins to manifest itself when the car is on the road, and fails to discover itself even upon the most thorough and careful examination of the mechanism. Generally speaking, such noises can be traced to the leaves of the springs which have become dry through lack of lubrication, and are binding against one another. A temporary remedy, when this is the case, is to jack up the body from the ground, and spread a layer of heavy grease between the leaves. This will soon be worked out by the action of the car, but may be renewed from time to time until opportunity presents itself to dismount the suspension and clean and lubricate all the elements in the correct manner. Flake graphite suspended in tallow or parafine serves a more lasting purpose, but is better than grease alone.

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A CAMPAIGN OF EDUCATION.

Manufacturers, Garages

and Other Users of Automobile Oils

PLEASE NOTICE

IF the brand of automobile oil you purchase is selected because of its predominant use by racing cars, you will use ONE kind. If it is purchased because of the attractiveness of its display in recent automobile shows, you will use ANOTHER kind. If it is purchased because of vague, unsubstantiated claims made by various oil manufacturers, you may use any one of a DOZEN other kinds.

But if by any chance you desire to make your purchases of oils INTELLIGENTLY and WITH SOME REFERENCE TO THE PURPOSES TO WHICH THEY ARE TO BE PUT, it is respectfully suggested, entirely in your own interest, that you communicate with several prominent concerns, secure samples from them of the oils which they recommend for use in your particular automobile, and submit the samples so received to a series of comparative physical tests and ascertain for YOURSELF their ability to resist heat, the amount of carbon they will deposit, together with their possession of any other attributes, which in your opinion may be pertinent to the question involved.

Any one of the following concerns are reputable manufacturers and will undoubtedly send samples of their oil upon request.

THE COLUMBIA LUBRICANTS COMPANY,	78 Broad St, New York City
THE HARRIS OIL COMPANY,	Providence, Rhode Island
THE VACUUM OIL COMPANY,	Rochester, New York
THE HAVEMEYER OIL COMPANY,	80 Broad St., New York City
BORNE SCRYMSER COMPANY,	185 Front St., New York City
GEORGE A. HAWS	73 Pine St., New York City

It may be noted that the concern inserting this advertisement asks for no other consideration than an INTELLIGENT COMPARISON between its oil and that of its competitors, who are named frankly.

If there is any way of indicating more strongly than this the confidence we feel in the superiority of our own product, we do not know of it.

(Signed) The Havemeyer Oil Company,
89 Broad St., New York City.

P. S.—Two of our competitors have requested that their names be omitted from this advertisement. This request has been complied with. The inference is plain.

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'Bus Line Wanted in Guadaloupe.

Opportunities for adventures in the way of motor transport lines are constantly multiplying, both at home and abroad, and there can be little doubt that where the need is sufficiently great to create a well-defined demand, there must be the elements of a profitable undertaking, granted only the capital to start, and the ability to continue wisely. The latest published instance of this sort emanates from the governmental consular reports, in which Consul G. Jarvis Bowens, of Guadaloupe, writes that there is an opportunity for an enterprisingfi American to run a daily passenger line of automobiles from that place to Basse-Terre, a distance of about 40 miles. The government of that West India island will grant a subsidy of $6,000 annually for the assurance that the mail will be taken twice daily, and will require a deposit of $1,500 to insure faithfulness of contract, which can run for twenty years.

With the present facilities, travel between these towns is quite a problem. It takes six hours or more by boat or diligence, neither of which run daily, and it is said that a daily motor line would pay. It would require about six machines, one each of 10, 8, 6, 4, and 2 seats and about the same number of chauffeurs until local men could learn to handle the machines. The route is over a good road, but runs through valleys and over mountains.

Why the 'Busses Smoke.

London is up in arms against the smoke nuisance resulting from the too liberal use of lubricating oil on the motor 'busses. As there are now said to be 1,000 of the latter coursing the streets of the world's metropolis, it is easy to understand that they can most effectively pollute the atmosphere. And why they do so is even more clear from the explanation of a manager of one of the 'bus companies. "I have 65 motor omnibusses running daily under my control," he says, "and for this number 300 gallons of oil per day is required. The oil used is exactly like water. The men simply know nothing and I have always told them to have the crankcase as full as they can possibly get it and have the car smoking at the back unless they want a breakdown."

WANTS AND FOR SALE.

15 cents per line of seven words, cash with order. In capitals, 25 cents per line.

A TEN PASSENGER wagonette; sample car, 1905-1906 model steam; price and description on application. THOMPSON AUTO CO., Olneyville Sq., Providence, R. I.

FOR SALE—Four new two-cylinder, vertical, Continental engines. Cylinders 4-inch bore by 4¼-inch stroke, about 12 H. P. Cash offer wanted; cost new $175 each. A. D. MEISELBACH MOTOR WAGON CO., North Milwaukee, Wis.

FOR SALE—1905 Royal Tourist, blue body, cream gear, Victoria top, $2,500; National, 24 h. p., light blue, yellow gear, $2,100; National, 25 h. p., black, red gear, $1,750; National, light blue, cream gear, $1,600; Franklin tilting front seat type touring car, red, side-hampers, $1,000; Franklin Model "E" runabout, blue, cream gear; $550; Winton, 1904 model, new tires, $950; Winton, 1904 model, $850. Above cars fully equipped, thoroughly overhauled, newly painted. REYBURN MOTOR CAR CO, 5023-5029 Delmar Boul., St. Louis, Mo.

FOR SALE—Four cylinder, 24 h. p., American Panhard (Berg) automobile; cost $5,000; seats seven; will take $1,500. RANDOLPH PERKINS, 15 Exchange Place, Jersey City, N. J.

FORD MODEL B, four cylinder, 20-24 h. p. As good as new in every way, and looks just as good as new. Has folding Cape top. Latest model side entrance tonneau. Cost as equipped about $2,200. Will sell for cash, $1,200. This is an exceptional bargain. An automobile exactly suited for family of four. Will take them anywhere at any speed desired. Most comfortable riding of any automobile. Has been driven and used only by the present owner, and has not been abused in the least. Guarantee all machinery about as good as new. Can be seen at my private barn. Call or address F. L. SWEANY, 1700 Tioga St. Philadelphia, Pa.

FOR SALE CHEAP—Auto parts, complete gears with or without power chassis; 2-12 h. p. motors; sets wheels, etc, 1 new, 1 2nd hand, 4 passenger car, all half price. Going out of business. L. MOULTHROP, Ft. Harrison, Mont.

POPE-WAVERLY, No. 29, electric runabout; 1905, top; cost, $1,100; perfect condition; sell cheap. ELECTRIC, Box 144, Westfield, Mass.

TIRES RE-TREADED—¼ to ½ less than factory prices. Old Tires bought and sold. Have some bargains in repaired tires. Write for prices. AUTO TIRE REPAIR CO., Columbia City, Ind.

GREAT SACRIFICE of second-hand autos to quick buyers; Olds Runabout, $140; 6 h. p. Woodruff Runabout, $125; Searchmont Runabout, $150; $300 Steam Surrey, $175. These are only a few of our many bargains. Also have a full line of motors, gears, bodies, and all parts. Stamp brings No. 10 Bargain Sheet just issued. T. S. CULP, Canton, Ohio.

OWNERS of cars and those about to purchase, consult an expert of nine years' practical experience as to the exact condition and value. Examinations made and estimates furnished by a Mercedes expert. Terms reasonable. Apply to JNO. F. MACCONNELL, No. 209 East 56th St. Telephone 4929-J Plaza.

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HIGH CLASS CARS OUR SPECIALTY.

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Send for complete catalogue of automobile supplies.

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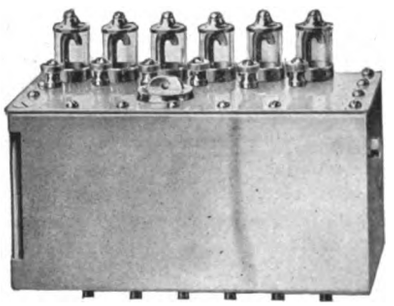
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Send for our catalog.
THE CHANDLER CO., Inc.
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Constant Sight Feed. No Liquids.
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The Pullman of Motor Cars.
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Make and Break Spark, Simms-Bosch Magneto.
THE RANIER CO., Broadway & 50th St., N. Y.
Philadelphia Branch, 236 N. Broad Street.
Chicago Branch, 1253 Michigan Ave.
Boston, Morrison-Tyler Motor Co., 121 Massachusetts Ave.
St. Louis, Van Automobile Co., 4706 Washington Ave.
Cleveland, The Paxson Motor Co., 317 Huron Ave.
San Francisco, A. H. Hayes, Jr., 331 Pine St.

The Week's Patents.

821,302. Motor Road-Vehicle. William B. Megone, Paddington, England. Filed Aug. 3, 1905. Serial No. 272,541.

Claim.—1. In a motor road-vehicle a rain or wind shield comprising a foldable frame detachably carried by the dashboard of the vehicle, a shield consisting of a waterproof rollable material wholly or partially transparent, a box carried on said dashboard, a roller mounted to revolve in said box and carrying the lower edge of the shield, means for readily attaching and detaching the upper and side edges of said shield to and from the frame, and means for stretching said shield on the frame, substantially as set forth.

821,370. Explosive-Engine. James M. Morrison, Sioux City, Iowa. Filed Dec. 30, 1904. Serial No. 238,989.

Claim.—An explosive-engine comprising a cylinder, a piston mounted to reciprocate within the cylinder, a rotating crank-arm, a link connecting the piston and the crank-arm, a cylinder-head mounted to reciprocate within the cylinder, an outwardly-extending rod secured to said cylinder-head, a cam-disk disposed for co-operation with the rod, connecting means whereby the rotation of the crank-arm produces a rotary movement of the disk which in turn produces an intermittent reciprocating movement of the cylinder-head in co-operation with and at a short distance from the piston while the piston is finishing its inward and beginning its outward stroke and means for producing the explosion after the piston has begun its outward stroke and after the crank-arm has passed the center and while the distance between the piston and the cylinder-head is at its minimum.

821,410. Relief for Explosive-Gas Engines. Peter P. G. Hall, Jr., Philadelphia, Pa. Filed July 11, 1905. Serial No. 269,193.

Claim.—1. In a device of the character described, an exhaust-valve for the cylinder, means for holding the same normally in closed position, a lifter for said valve, a cam-shaft, a cam carried by said shaft and adapted to actuate said valve to open the same, an auxiliary shaft within said cam-shaft and means secured to said auxiliary shaft which can be moved into and out of alinement with said lifter for actuating said valve.

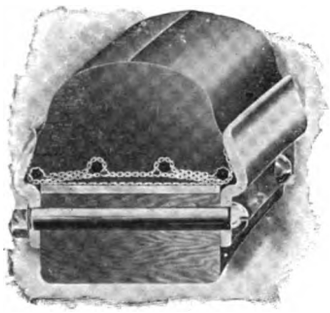
821,461. Ball-Bearings. Robert Conrad, Berlin, Germany. Filed May 10, 1904. Serial No. 207,330.

Claim.—1. In a ball-bearing, the combination with the balls, of intermediate devices forming substantially closed walls in contact with the balls, a pair of such devices being between each pair of balls and the devices of such pair being pressed apart yieldingly.

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FORD MOTOR CO.,
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TWIN
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Outdoor and Indoor Recreations in Plenty—Golf Playing Now

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CHICAGO, INDIANAPOLIS & LOUISVILLE RAILWAY

Hotel Rates range from $8 to $35 per week, including free use of all the waters.

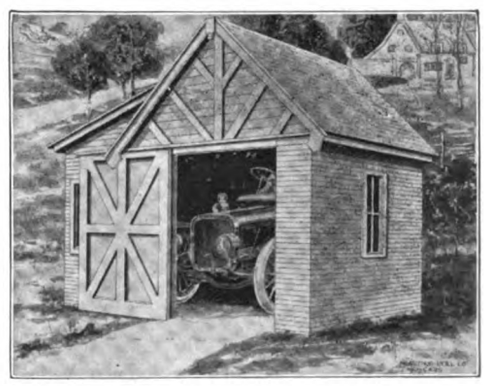
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At Readville Mass. Decoration Day: First in the 10-mile handicap for stock cars, beating 10 other machines of leading makes. Same model stripped, made the fastest mile of any stock car during the day, being beaten only by strictly racing machines of 80 h. p. and upwards.

Separate catalogues of Columbia gasolene cars, electric carriages, and electric commercial vehicles on request.

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Every battery guaranteed to give satisfaction or purchase money refunded.

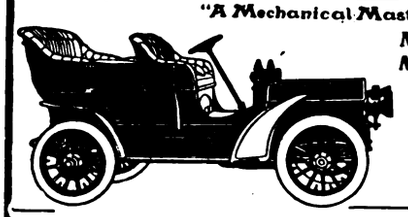
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Model C, 24 H. P. $2500
Model D, 30 H. P. $3000

4 Cylinders; Air Cooled.

Double Three-Point Suspension

No Cardan Joints.

One Finger Control.

The Marmon Kind of Air Cooling is dependable in all climates and under all conditions, and is so guaranteed by this house. The Marmon Motor never overheats, partly due to the arrangement of the cylinders, and partly due to our oiling system, the simplest, most efficient and most economical oiling system ever devised. Write for Catalog No. 6.

Agents wanted in unoccupied territory. Get in line for 1907.

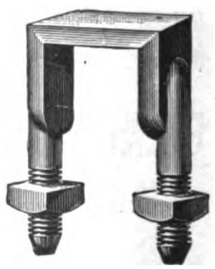
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We are prepared to estimate on your 1906 Forgings.

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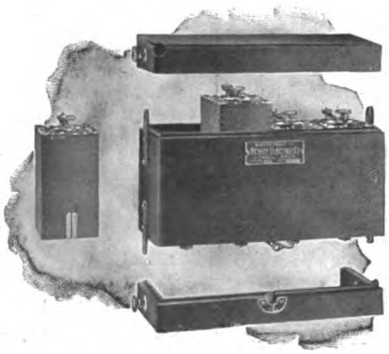
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Will increase the power of your engine from 10 to 15%.

Are the most thoroughly constructed coils on the market producing the hottest spark and having the most rapid vibrator.

Are guaranteed against burning out.

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Large facilities and dependable deliveries.

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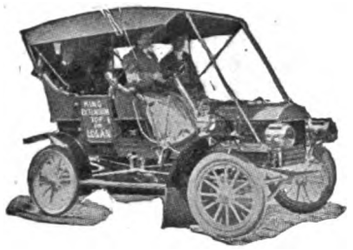
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The best possible tops at the lowest possible prices



The top is an important part of the equipment of the up-to-date automobile. If you want one with plenty of style, light in weight, yet strong and durable, investigate the **KING** line. It is the most complete on the market. Any style, any color, any size, made for any machine. Get our catalogue, samples and prices and you will not purchase elsewhere.

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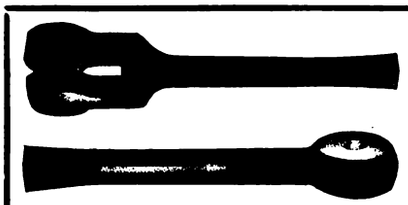
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Feed oil with absolute certainty, in adjustable, measured quantities, regulated by the operator without stopping the motor, and at intervals proportionate to the speed of the motor. **No valves to clog.** They do not employ gravity, nor pressure, but **shoot** the oil to the bearings. Oil thickened by cold does not stop their perfect operation. **Smoke is prevented.**

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Price for any sized wheel with complete fittings.

50 Mile Combination Instrument . .	**$45 00**
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80 Mile without Odometer	**45.00**

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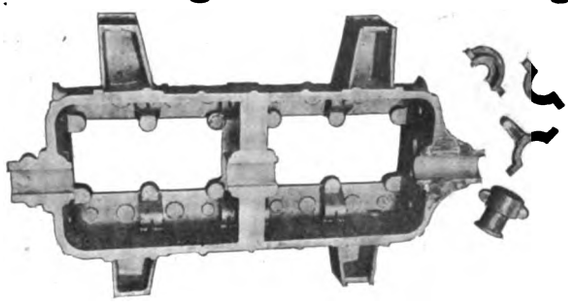


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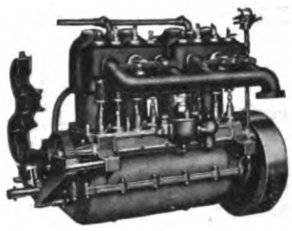
Parsons' Manganese Bronze Castings.



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A "CONTINENTAL" MOTOR



Type 'O" 45 H. P.

is the only one to consider when you want the highest grade, lightest and most durable and efficient motor for your car. **Cut shows our 45 H P. Motor.** Also four other sizes. Sold separately or in combination with our "Continental" power plant, including Clutch and Transmission.

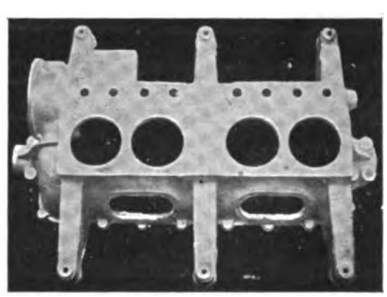
Our new Muskegon plant, in addition to our Chicago shops, insures prompt deliveries.

Don't order before getting our catalogue and prices.

Continental Motor Manufacturing Co.

MUSKEGON, MICH.

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Aluminum Castings.

The Right Sort at the Right Price.

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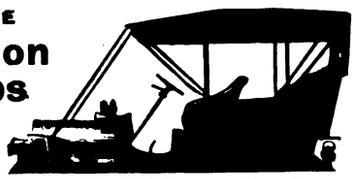
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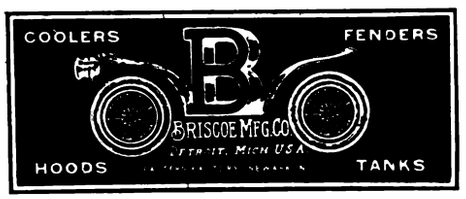
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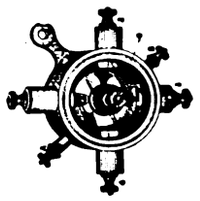
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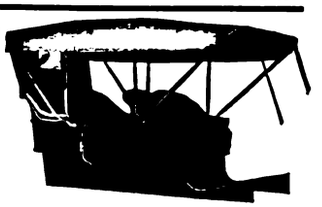
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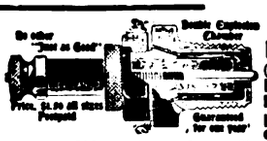
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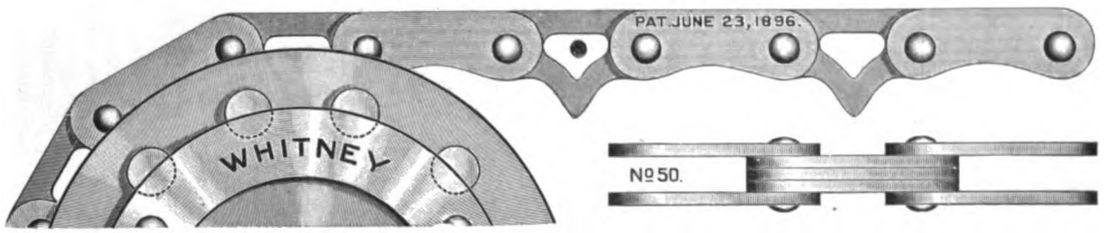
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for 1906.
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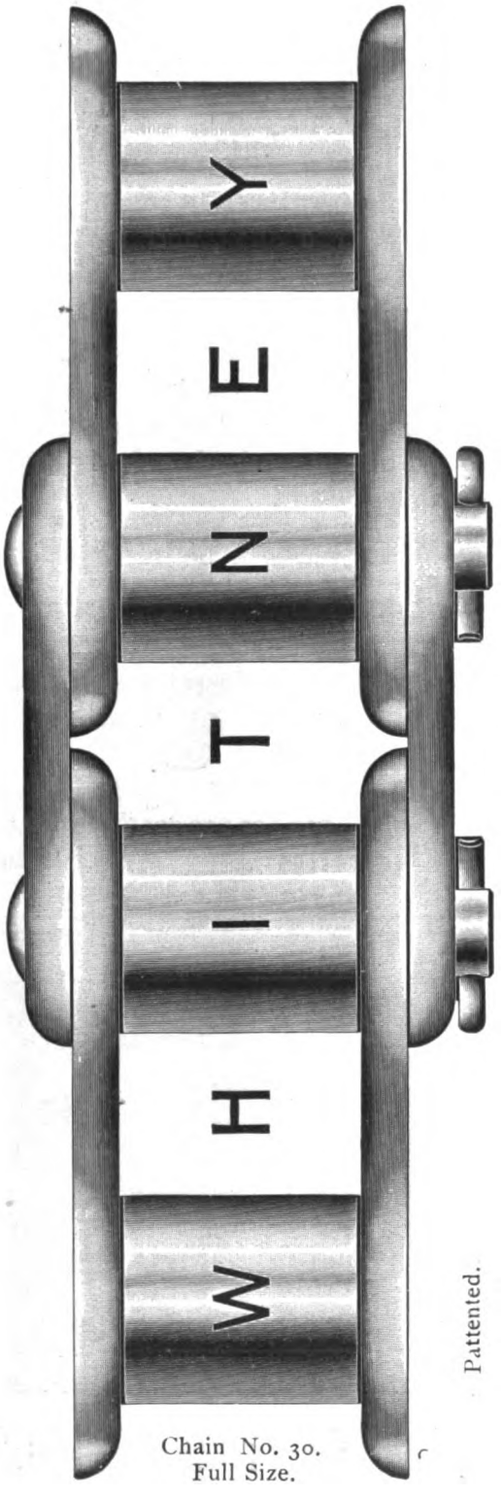
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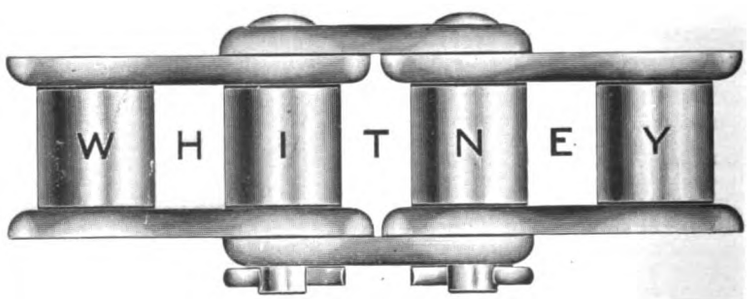


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Full Size.

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CHAIN No. 7. FULL SIZE.

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LISTEN!

Has it occurred to you that there is an eloquent tribute to the worth of Morgan & Wright tires in the fact that the users of them are seldom heard to talk of their tire troubles?

We are egotistical enough to believe that the tires merit this tribute.

Furthermore, we can prove to you that we are correct in our belief.

There is no method of making friends equal to the method of making good.

CLINCHER——DUNLOP——BAILEY "WON'T SLIP" TREAD



Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect We guarantee our tires only on rims so branded.

MORGAN & WRIGHT, CHICAGO

New York Philadelphia Dayton Minneapolis St. Louis Denver San Francisco
Syracuse Boston Cleveland Detroit Atlanta Los Angeles Portland

IT'S IMPULSES THAT COUNT.

If you come right down to it, what is the one thing required of a gasoline motor? Power, isn't it?

And that is produced by exploding a mixture of gas and air. The more explosions the more power, of course.

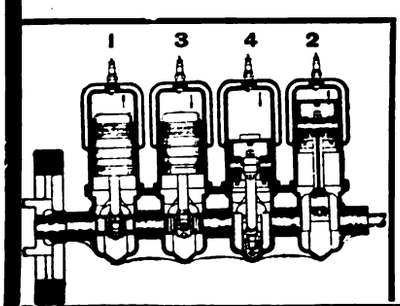
To get more impulses automobile designers have, very naturally, added to the number of their cylinders.

But do you realize what that means in the case of every car except the ELMORE?

The ELMORE has a two-cycle motor without any valves. Not one small outer part on its cylinders.

The four-cycle engine makers—and that's pretty nearly everyone else—must use valves or their motors will not work. There are two valves on each four-cycle cylinder, and they are actuated by small parts consisting of eighteen or twenty springs, rods, levers, cams, etc.

Now do a little figuring. The Elmore four-cylinder two-cycle engine, which has no valves at all, gives as many impulses—explosions, that is—as would be possible with eight cylinders of the four-cycle type. And more than that, the four-cycle engines would require 16 valves, with nearly one hundred and fifty small fittings, each one working at an adjustment of 1/200 of a second. Pretty close work, isn't it? You can understand why valve trouble comes regularly unless you are an Elmore owner.



Shall we send you some interesting literature?

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G & J TIRE CO.

Indianapolis, Ind.

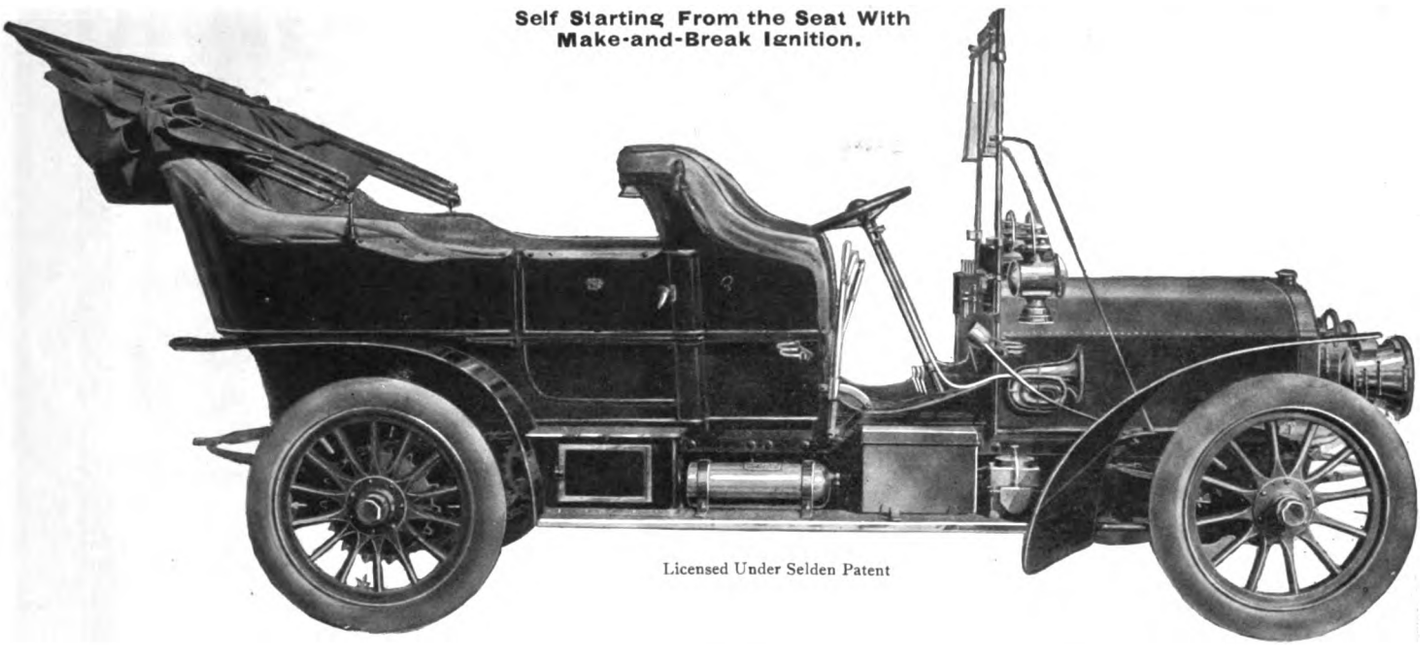
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"Matheson"

HESS-BRIGHT IMPORTED — ball-bearings secure perfect transmission of power from engine to wheel.

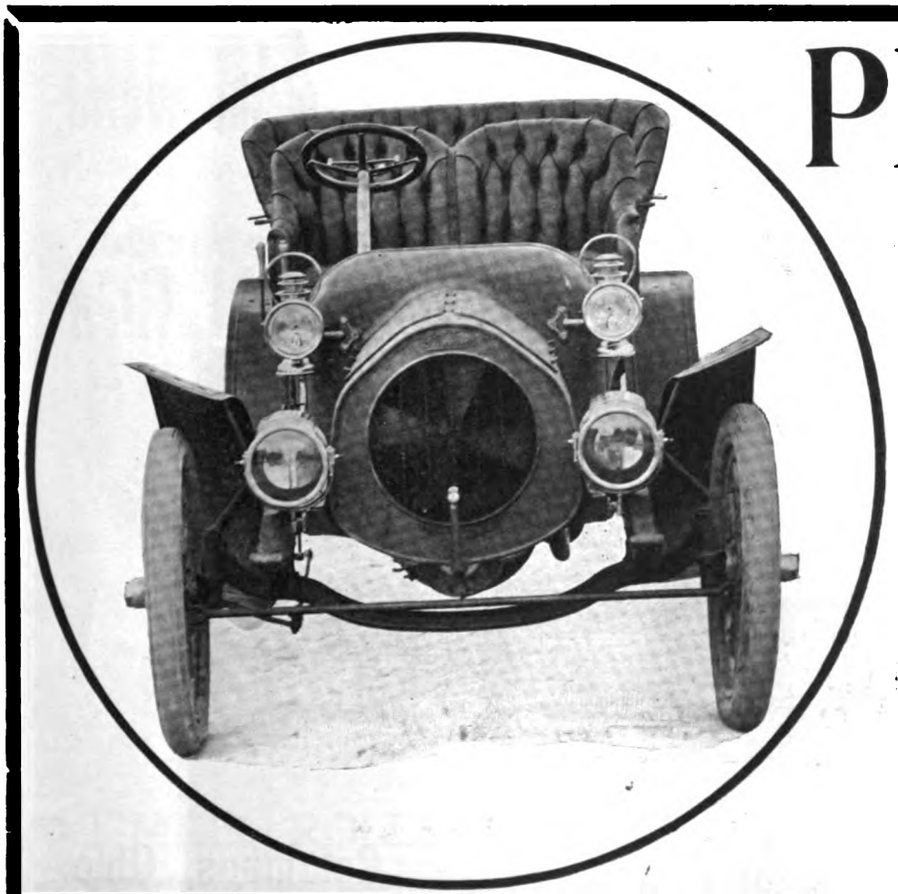
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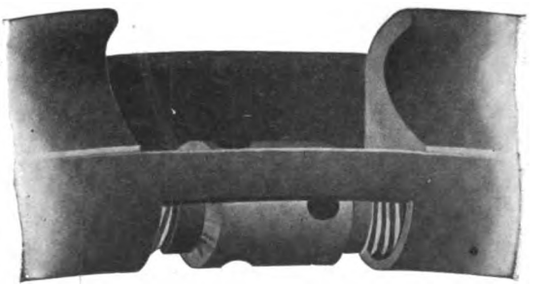
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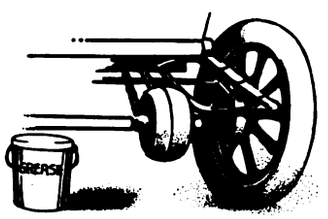
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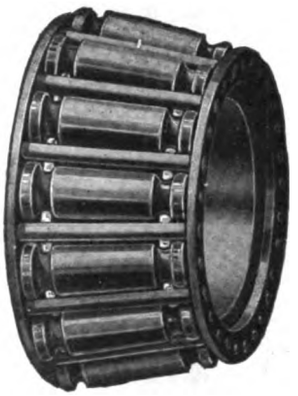
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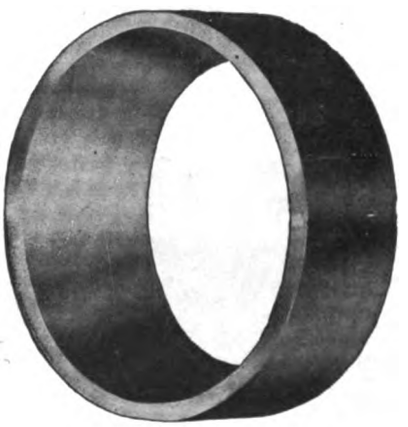
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For 1,000 miles and 1,094 3/16 miles in 24 hours
Made Nov. 17, 1905 STILL STAND UNEQUALLED



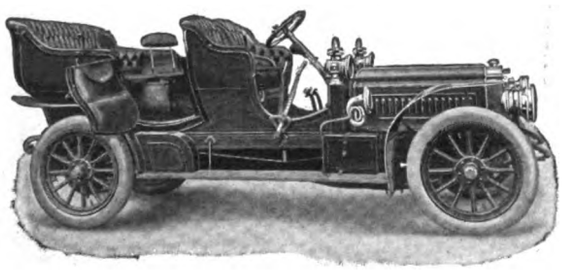
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NATIONAL MOTOR VEHICLE CO.
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THOMAS FLYER
An International Success.
Not merely the leading AMERICAN CAR, but the LEADING CAR



THE 50 H. P. THOMAS FLYER $3,500.

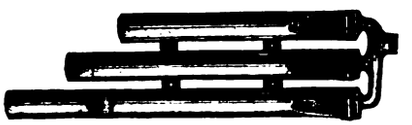
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THEY ARE ALL IN THE THOMAS FLYER.

Ask us to-day for our handsome catalogue.

THE E. R. THOMAS MOTOR COMPANY
1416 Niagara St., Buffalo, N. Y.

The Gabriel Horn



The Gabriel Horn is the horn of satisfaction. Its notes are always pleasing, not discordant and air-splitting as are those of its imitators.

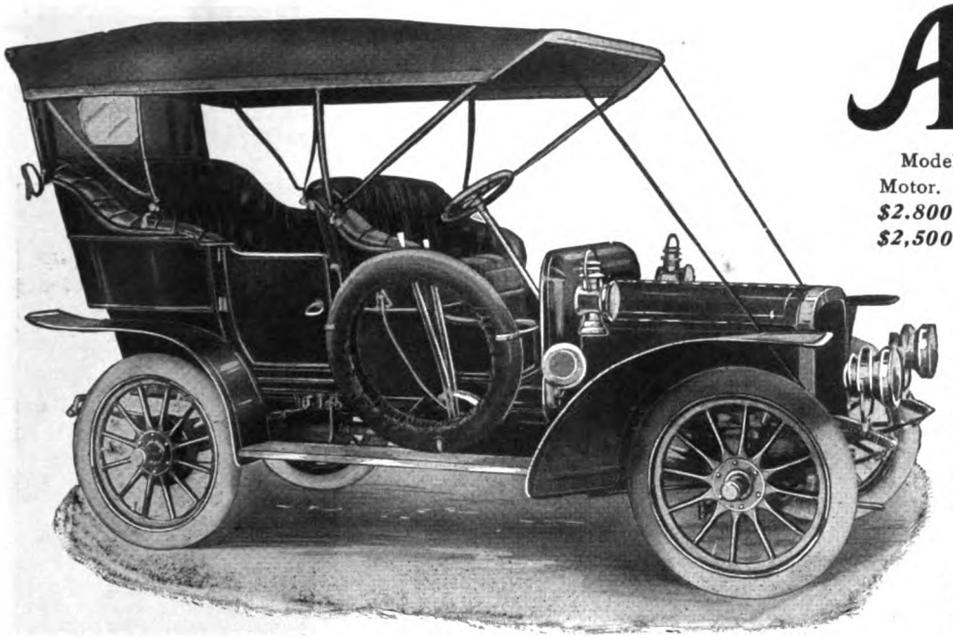
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Have you seen the "Baby Gabriel" for motorcycles?

Write for particulars.

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Model A. 24 H. P. Four Cylinder Air-Cooled Motor. With complete equipment, as shown above, *$2.800 F. O. B. Detroit.* (With road equipment) *$2,500.*

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The motor car of greatest flexibility—awarded First Prize for flexibility at the Open Air Show and Carnival at the Empire City Track, New York, May 24, 1906, and there were sixty contestants.

The motor car of correct mechanical construction—built by practical men.

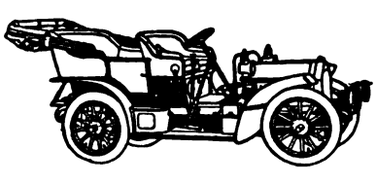
The motor car with an air-cooled motor of proven reliability, under all climatic conditions, on all roads—with an ample reserve force always to be depended on.

The motor car which comes thoroughly equipped as shown above—nothing to buy but the gasoline.

The opportunity to give you a practical demonstration requested. Send for illustrated descriptive book.

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Our catalogue omits generalities.
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Locomobile

COMPANY OF AMERICA
BRIDGEPORT, CONN.
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E. J. WILLIS CO.

ALL NEW NOVELTIES.

SIREN HORNS,
NEW SPEEDOMETER,
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The Amazon Clincher Tires

AT LOWER PRICES THAN ANY OTHER MAKE.

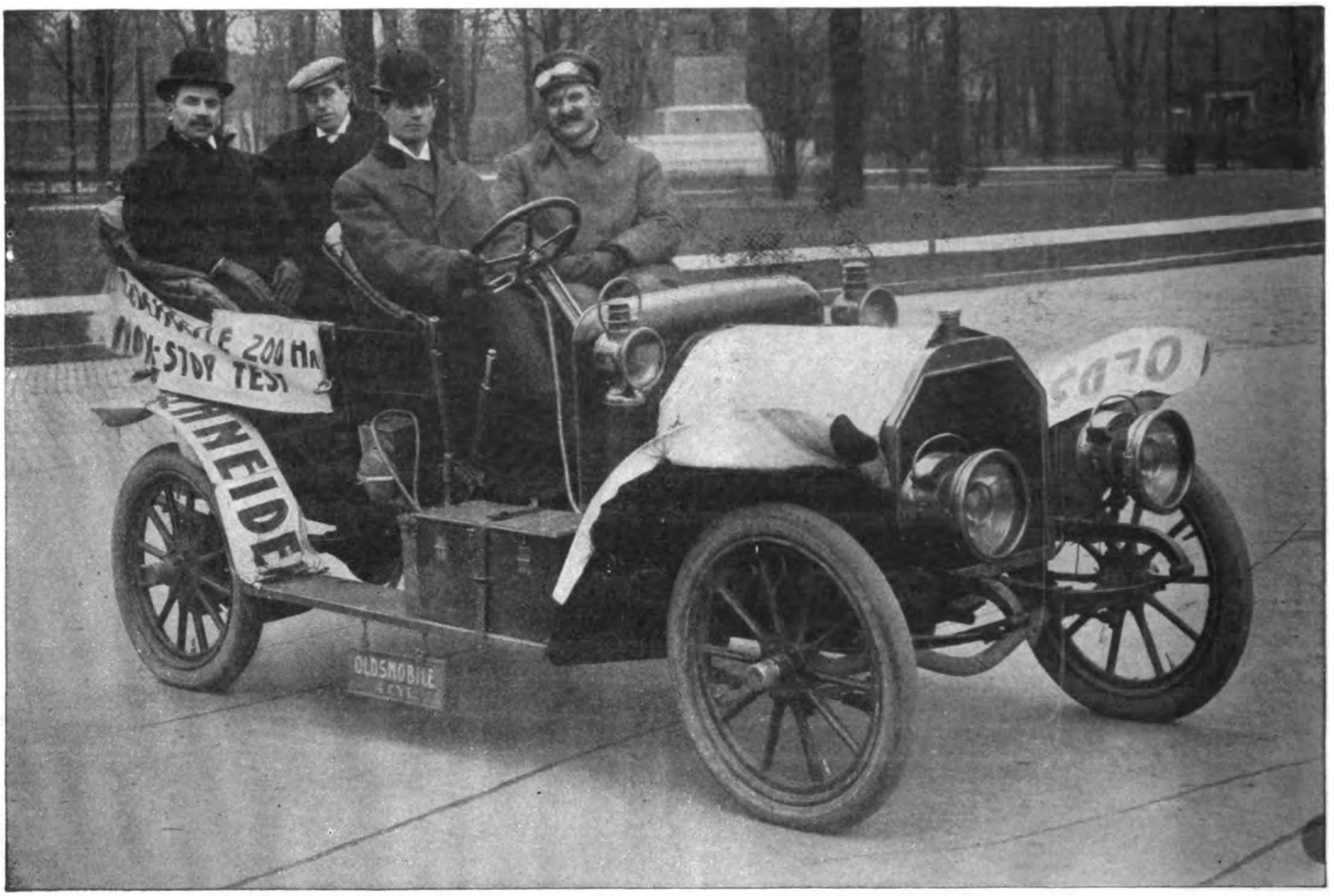
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THE NON-STOP CAR.

In addition to the wonderful records of the **100-hour non-stop** run made in Chicago and the **200-hour non-stop run made in** Detroit, the Oldsmobile Four-cylinder Touring Car has made a **record run from New York to Poughkeepsie without changing the high speed gear.** Of this run "Motor Way" says:

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"Under the conditions of the test the control lever was thrown into the high speed position and sealed by Mr. Ferguson in the presence of several members of the club and members of the press. It was necessary to start and operate the machine entirely on high gear as the drivers were not allowed to change speeds even for reversing. Due to the fact that the car has a range of from 3 miles an hour to 52 miles an hour it was possible to make the whole trip without violating any of the speed ordinances and at the same time have sufficient power in reserve to climb all the hills en route."

We want to tell you more of the wonderful possibilities of this wonderful car. Address Dept. K.

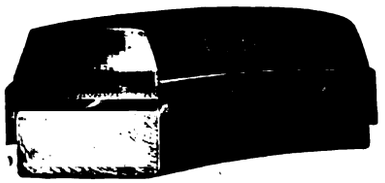
OLDS MOTOR WORKS, Lansing, Mich., U. S. A.

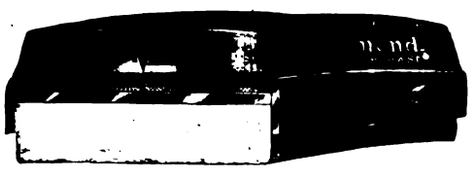
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A PLAIN, ORDINARY MALLET.

Nothing very complicated about a mallet, is there?
Yet, it's all the machinery necessary for applying or removing





Diamond
Wire Mesh Base Tires
Best for Motor Trucks and Commercial Cars.

CAN BE QUICKLY AND EASILY APPLIED AND REMOVED BY YOU, WHEREVER YOU MAY BE.

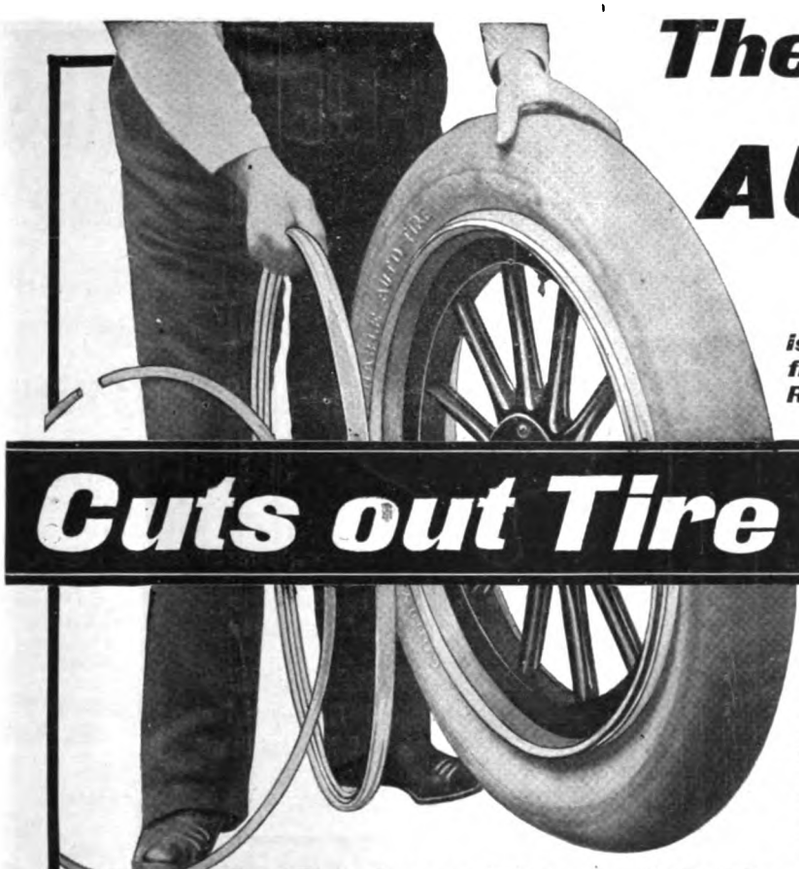
SIMPLICITY: Base and attaching device are one and the same.
ECONOMY: Phenomenal wear at low cost per ton mile.
SCIENTIFIC BALANCE: Base and tread proportioned rightly for their work.
ENORMOUS TRACTION: The greatest ground grip per tire.
QUALITY: DIAMOND.

Twin and triple types employed for tires above 5 inch, size.

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The GOODYEAR
Detachable
AUTO-TIRE
ON
Universal Rim

is so durable yet so lively—so difficult to puncture yet so easy to Repair—that it really

Cuts out Tire Troubles

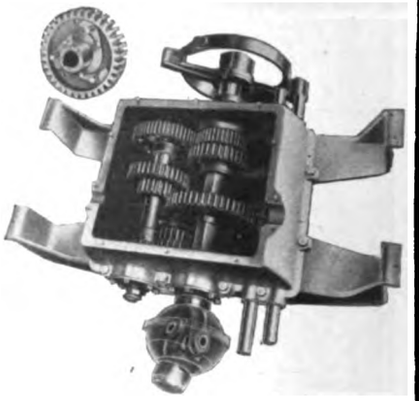
Call and see a demonstration at any of the following branches—it will convince you.

Boston, 261 Dartmouth St.
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Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
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Denver, 220 Sixteenth St.
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The Goodyear Tire and Rubber Co., Grove St., Akron, O.

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HAYNES TRANSMISSION



In the ordinary types of transmission where a change is made from high gear at 30 miles per hour with a 2,750 pound car and a normal load to 15 miles per hour on middle gear, the shock to the mechanism is equivalent to a verticle fall of 7 feet.

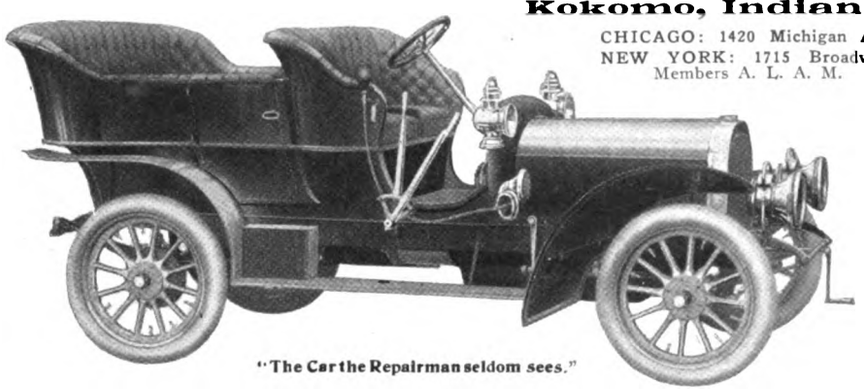
The Haynes Transmission assures ease and perfect safety in operation and entirely prevents the violent shock that would ordinarily be caused by changing from high to a lower gear.

In the hub of the Master Gear is a ratchet and pawl device which permits the car to coast with middle or low gear engaged until the speed of the car and engine are equal, when the pawls engage and engines take up the load. Change may be made from high to middle or low gear without any possibility of burring or stripping the gears.

The Haynes is the Highest-Powered Shaft-Driven Car Built. In requesting Catalogue, for prompt attention address Desk D 18.

HAYNES AUTOMOBILE CO.
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CHICAGO: 1420 Michigan Ave.
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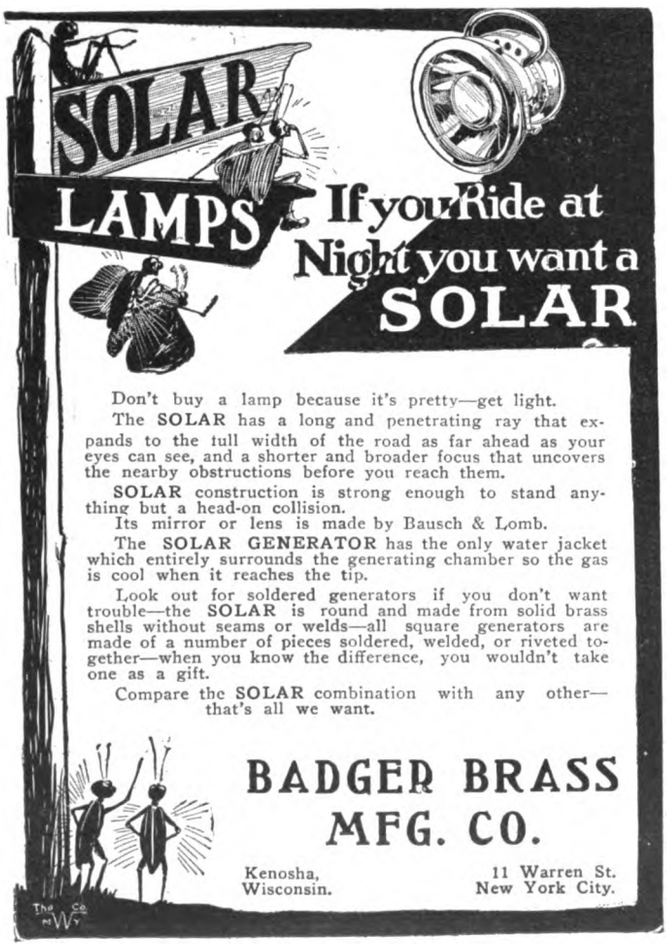
"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5½x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,800 f. o. b. Kokomo. Full equipment.

Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs 4½x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.



Don't buy a lamp because it's pretty—get light.

The SOLAR has a long and penetrating ray that expands to the full width of the road as far ahead as your eyes can see, and a shorter and broader focus that uncovers the nearby obstructions before you reach them.

SOLAR construction is strong enough to stand anything but a head-on collision.

Its mirror or lens is made by Bausch & Lomb.

The SOLAR GENERATOR has the only water jacket which entirely surrounds the generating chamber so the gas is cool when it reaches the tip.

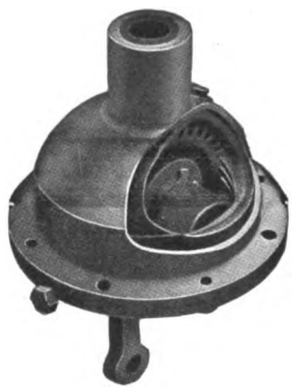
Look out for soldered generators if you don't want trouble—the SOLAR is round and made from solid brass shells without seams or welds—all square generators are made of a number of pieces soldered, welded, or riveted together—when you know the difference, you wouldn't take one as a gift.

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Irreversible Steering.

Bevel and Chain Drive Differential.

Many Sizes and Models.

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Made in the shape they assume in service, relieving strain on the fabric.

NO LOOSE COVERS

Fitted with a flap, giving a perfect seating for the inner tube.

NO PINCHED TUBES

Made with a raised tread, giving added wearing surface.

Why not buy THE BEST TIRES when they cost no more than others.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

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The Car for Service.



TIRE ECONOMY.

Every motorist knows that up-keep of tires is, in the case of most cars, a heavy item of expense. The testimony of all critical observers, including those in the tire trade, is that White cars have far less tire trouble than any other make of touring car. This great advantage is due partly to the fact that the White starts without jerk or jolt and that changes of speed are effected gradually without any sudden strain on tires and machinery. Another factor reducing tire expense on the White to a fraction of that on other cars, is that the White glides along smoothly and absolutely without vibration. In other words, the only jolts to which the tires are subjected are those of the road.

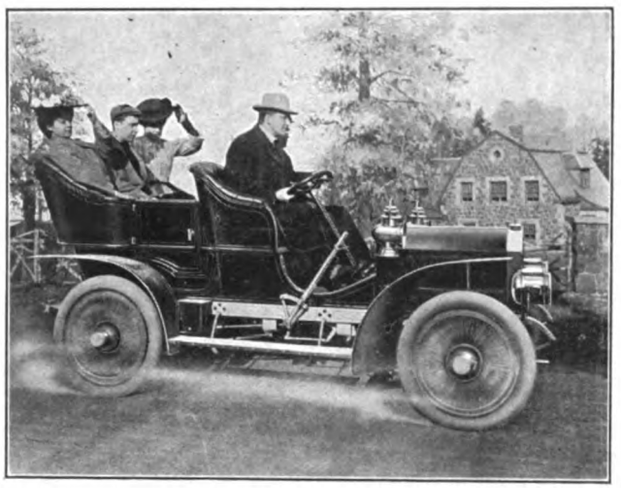
As an experienced motorist has expressed it, "The wear on tires on the White car is all from beneath and none from above."

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WHITE SEWING MACHINE COMPANY

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Pope-Hartford

MODEL G.

There's the maximum of enjoyment and minimum of care and expense in a 2-cylinder gasoline car whose cardinal points of value have been proved by a season's use, and whose details of design, construction and equipment have been improved in accordance with the suggestions that come only with experience.

If you want a car for yourself or for family use, dependable, easy running, a good hill climber and efficient in the broad sense of the term, a machine you can drive and care for yourself, you cannot offord to overlook the Pope-Hartford Model G, which gives unusual value for the price.

Body: Divided front seat and double side entrance tonneau. **Seating capacity:** Five. **Motor:** 2-cylinder opposed, located under the hood. Horse power, 18. **Ignition:** Jump spark. **Transmission:** Sliding gear, three speeds forward and reverse. **Drive:** Shaft with bevel gears. **Brakes:** Double acting brakes expanding in drums attached to each rear wheel hub; double acting band brake attached to rear of transmission shaft. (With top $100 extra.) **Price, $1,600.**

Write for Catalogue.

Pope Manufacturing Co.

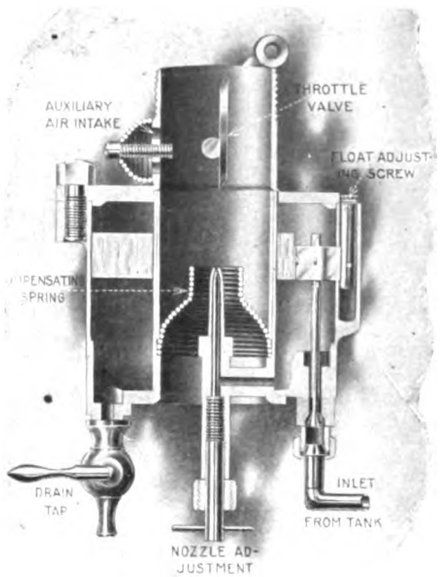
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Compensation

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The **GAITHER-OWEN Carburetter** "breathes" as naturally as your own lungs, supplying itself with additional air in exact proportion to the engine speed.

IT HAS NO PISTON, NO DELICATE PARTS, NOR COMPLICATION OF ANY KIND.

Sane simplicity marks it. No one who pretends to make an intelligent study of carburetion and keeps abreast of the times can afford to remain unfamiliar with

The Gaither-Owen.

Built by brains and backed by sound judgment. Let us tell you more about it.

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GAITHER-OWEN CO.

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MARK XLVI
24-28 H. P. $3,000.

At Readville Mass. Decoration Day: First in the 10-mile handicap for stock cars, beating 10 other machines of leading makes. Same model stripped, made the fastest mile of any stock car during the day, being beaten only by strictly racing machines of 80 h. p. and upwards.

Separate catalogues of Columbia gasolene cars, electric carriages, and electric commercial vehicles on request.

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Hold it away from you and see. It's the scale of the **Warner Auto-Meter** actual size. It says your Automobile is traveling 8 miles an hour. It is just as steady on your car as it is in your hand—for the scale of

Accurate at all speeds

The Auto-Meter

Goes on the Dash Board.
Reads from the SEAT.



is not influenced by the jar of the car—speed alone moves it. It doesn't bob around, the way other indicators do, until you are not certain whether it says 5 miles or 15.

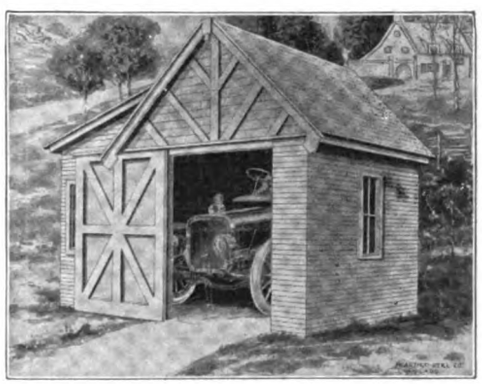
Let us tell you more about this wonderful instrument—how its's made with sapphire jewels like a watch, yet is so strongly built that it takes an axe or a bad collision to break it or render it inaccurate and how and why we are safe in selling it under a more liberal **GUARANTEE** than any other manufacturer **dares** to give. When you write we'll send you also a trouble-saving 50 cent book. **Auto Pointers**—invaluable to a man who drives his own car.

WARNER INSTRUMENT CO
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The Auto-Meter is sold by all Dealers and at the best garages.

A Sensible Auto House

Suits the Car



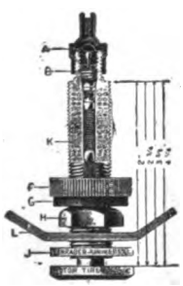
What is your car worth? It's worth keeping properly anyhow. The Premier Auto House is the right place because it has been made for the purpose;—made portable—made artistic—and made practical. It only takes two hours to erect. Quite simp'e to move and re-erect. Just as durable as a permanent structure. The price too is remarkably low for such an excellent building.

Write for free booklet No. M 27.

Chas. H. Manley,
Premier Mfg. Works, ST. JOHNS, MICH.

SCHRADER UNIVERSAL VALVE.

Trademark Registered.



SIMPLE AND ABSOLUTELY AIR TIGHT.

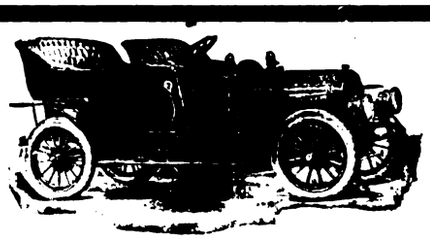
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ROYAL TOURIST

FAMOUS?

ASK AN OWNER.

ROYAL

Model G. $3500.00 40 H. P.

THE ROYAL MOTOR CAR CO.

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Ready Made Gas for Automobiles

"Prest-O-Lite"

LIGHT WITHOUT WORK, WAITING OR DANGER

If you try to make gas for your auto lights in the old way, with a generator, you must have patience and wait—you must make up your mind to fix carbide, get water, blow out pipes, clean burners and do a lot of other disagreeable things.

There is one way to escape the difficulties, however—and only one. All the labor, uncertainty and danger of the old-fashioned way can be avoided by getting gas ready for use—generated in advance. That's exactly what Prest-O-Lite gas is—pre-generated acetylene gas, of very high illuminating power, condensed for convenient carrying, and compressed to give even pressure for steady, non-flickering, always reliable, always brilliant light.

There is no labor for the user. You simply turn the gas on and light it when you want it, just as you do the city gas in your home.

When a tank is empty, it can be replaced with a full one for the cost of recharging. Send for our book "Ready-Made Gas for Auto Lights."

We will send you a copy, postpaid, by return mail, with our compliments, for your name and address in a letter or on a post card. Write to-day, to

The Prest-o-Lite Co.,

Department 170, Indianapolis, Ind.

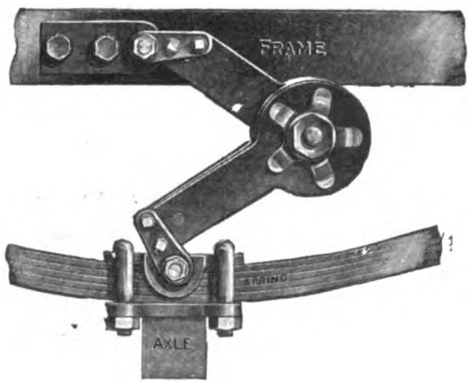


Over 400 Supply Stations—one in every important city in the United States. Ask for a list of them.

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TRUFFAULT-HARTFORD SHOCK ABSORBER

TRADE MARK



Increases the speed and prevents lost traction.

Obviates the necessity of slowing down for obstructions.

Absolutely prevents breaking of springs.

The Truffault-Hartford may cost a little more than the numerous imitations and experiments; but when every test has proven its superiority, does it pay to buy anything but the best? 95% of all Shock Absorbers in use are Truffault-Hartford.

Self adjusting—Requires no attention. Makes the car ride like a baby carriage. Wears longest.

Adopted by the Pierce Great Arrow, Locomobile, Matheson, Richard-Brasier, Peugeot, Napier, Gobron-Brillié, Studebaker, Aerocar.

Cars under 1500 lbs. $40 (four suspensions)

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WARNING

We are the owners of fundamental patents entirely covering every practicable form of frictional retarding devices for vehicle springs, and hereby warn the trade from handling any infringing device that may be offered for sale. We also warn the trade against the use of the term "**Shock Absorber**" which is our Trade Mark.

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E. V. Hartford, Pres. **67 Vestry Street, New York.**

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GOBRON-BRILLIÉ,
"THE FINEST AUTOMOBILE IN THE WORLD."

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Recognized as the most satisfactory means of ignition.

Now used and endorsed by 52 of the leading automobile and motor boat manufacturers.

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KNOX AUTOMOBILE COMPANY

ADDRESS ALL COMMUNICATIONS TO THE COMPANY

Springfield, Mass. May 21, 1906.

J. M. Gilbert, Sales Mgr.,
Firestone Tire & Rubber Co.,
Akron, Ohio.

Dear Sir:

I have directed our purchasing agent to place with you an order for a lot of 3 1/2 and 4" tires for our D-6 commercial cars, capacity 3000 pounds. The experience that we have had with solid tires on hundreds of commercial cars has convinced us that you have secured the happy combination of resiliency and durability that has been so difficult to obtain.

Trusting that you may be able to furnish these tires in time for our requirements, we remain,

Yours very truly,

Knox Automobile Company.

EHC/K.

P. S. We enclose the order.

President.

"THE HAPPY COMBINATION"

in Solid Tires for Motor Trucks and Commercial Vehicles:

FIRESTONE { RESILIENCY / DURABILITY

Read what one of the oldest established and largest makers of gasoline commercial cars in the United States thinks of FIRESTONE TIRES.

The largest users select FIRESTONE SIDE-WIRE TIRES. WHY? Experience proves them the most desirable—THEY ARE NO EXPERIMENT. They can't creep or come off the rim. They are the standard solid tires the world over.

Then why not "Firestone?"

FIRESTONE TIRE & RUBBER CO.

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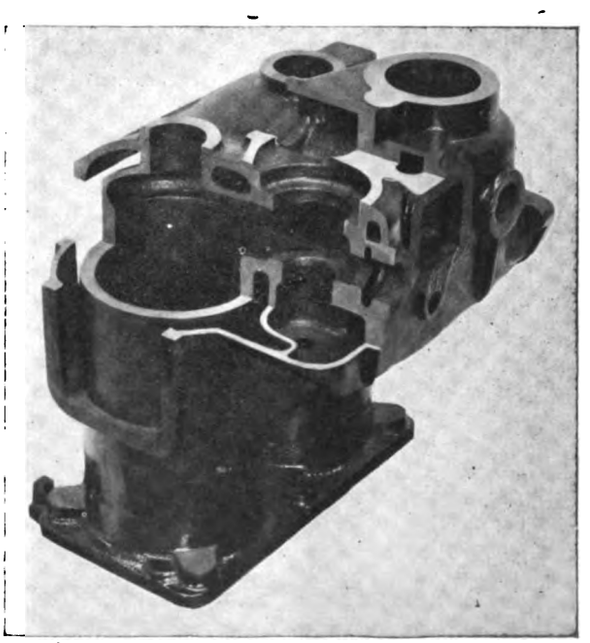
Cylinder Castings.

DON'T EXPERIMENT.

Send us your order for cylinders and secure all the advantages gained in doing business with the foundry which has the experience and "know how."

The patronage of the leading manufacturers is our best endorsement.

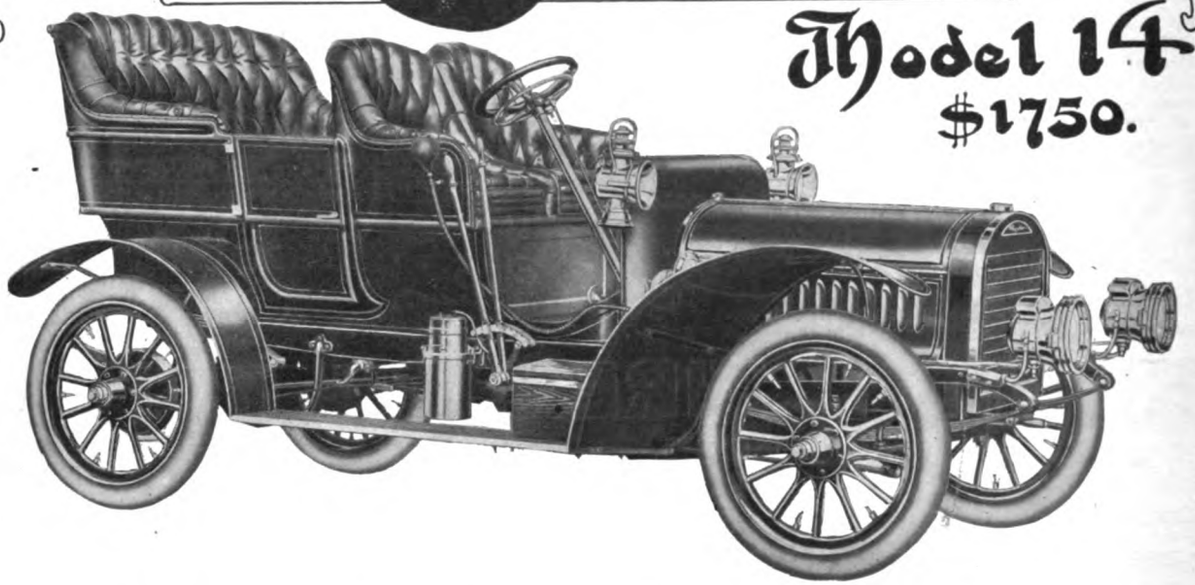
THE MANUFACTURERS FOUNDRY CO., Waterbury, Conn.



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Rambler

Model 14
$1750.



A medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, June 14, 1906. No. 2

THREE DAYS IN SESSION

Licensed Association Listens to Reports, but Little Real Information Leaks Out.

Three days were devoted to the semi-annual meeting of the Association of Licensed Automobile Manufacturers, in New York, which was concluded on Friday night last, 8th inst.

The board of managers, the various committees and the mechanical branch each held more or less extended sessions and in due course rendered their reports, but other than generalities and a statement that the condition of condition of affairs disclosed was highly satisfactory, nothing of moment reached the outside world. The report of the proceedings, as officially given out, was as follows:

"Acting upon the report of the Trades Committee, it was voted to continue in 1907 the same general policy with regard to agencies that has been in successful operation this year.

"The show committee announced a general plan for the national exhibition of 1907 in Madison Square Garden and it was even more extensive in scope and elaborate than was the plan for the show last January, the idea being to have it a grander affair in every way.

"There were reports also from the Tire Committee, the Traffic Department, the Mechanical Branch, from President Charles Clifton, General Manager George H. Day and from H. H. Franklin, treasurer."

After adjourning, the mechanical branch journied to Hartford where they conferred with Henry Souther, the association's metallurgist While there, they also visited the Hartford Rubber Works and were shown every process of the manufacture of Hartford and Dunlop tires. The engineers who formed the Hartford party were as follows:

Edgar Apperson, Apperson Bros. Automobile Co; H. P. Maxim, D. W. Pell, Electric Vehicle Co.; Jno. Wilkinson, F. J. Haynes, H. H. Franklin Mfg. Co.; H. G. Farr, J. H. Jones, Knox Automobile Co.; A. L. Riker, E. F. Russell, Locomobile Co. of America; Chas. B. King, V. M. Gunderson, Northern Mfg. Co.; A. W. Dunham, R. B. Jackson, Olds Motor Works; Russell Huff, Allen Loomis, Packard Motor Car Co.; D. Ferguson, Geo. N. Pierce Co.; Harold S. Pope, A. M. Holcombe, Lindley D. Hubbell, Pope Manufacturing Co.; Robert M. Beck, Pope Motor Car Co.; Robert Jardine, Royal Motor Car Co.; Alden Sampson, 2d, Alden Sampson Co.; George E. Sparks, T. W. Goodridge, Studebaker Automobile Co.; F. P. Nehrbas, E. R. Thomas Motor Co., and Henry Souther, metallurgist.

New York Agents Seek Larger Profits.

The New York Automobile Trade Association is making ready to attempt what the National Association of Automobile Dealers failed to achieve, that is, to induce the automobile manufacturers to enlarge the agents' commission. The New York dealers contend that the present margin of profit is not sufficient for those bearing the heavy expense incident to doing business in the metropolis, and feel so strongly on the subject that a general meeting of the association is to be held to discuss the subject and to outline a plan of action.

Profit on the Open Air Show.

The Board of Governors of the New York Automobile Trade Association, has announced that after all expenses in connection with the open air show at Empire City track were settled, there would be a rebate to the members who were exhibitors of about 20 per cent. of the cost of their space. The treasury of the association is enriched something like $1,000 by the profits of the show, and "the receipts from other sources around show time," as the official statement expresses it.

Two Men in New Places.

J. S. Bretz, formerly sales manager of the Corbin Motor Vehicle Co., has engaged in a similar capacity with the Hartford Automobile Parts Co.

L. P. Mooers, once prominent in Peerless affairs, has connected with the Moon Motor Co., St. Louis, Mo.; he will be attached to the engineering staff.

BIG FRENCH STRIKE SETTLED

Workmen Fail to Gain their Ends and Resume their Labors on Old Terms.

At a mass meeting at Levallois-Perret, on Wednesday, 30th ult., the workmen who have been holding up the French coach-building industry for the past month and more, incidentally tying up the motor car manufacturers and threatening to cripple French production for the entire season, decided to return to work without further delay.

Although this decision marks the official conclusion of the disagreement between the employers and men, the demonstration has been weakening gradually for several weeks, and groups of employees have returned to the shops, leaving the final struggle to a few of the leaders and malcontents.

Unsuccessful in creating the eight-hour working day, and the uniform wage scale, which it was intended to effect, perhaps the most significant result of the strike has been that it brought out expressions of thoroughly modern and democratic views on the part of several of the employers, marking a radical improvement in the French labor cause, and also that it brought about the creation of a defense fund among the manufacturers themselves. In connection with the numerous discussions, a plan of profit sharing and pensioning the workers was proposed and seconded warmly by several well known authorities, among them the Marquis De Dion himself, and though there is no indication that anything of the sort will go into effect immediately, the confession of the views which prompted it, cannot but have a beneficial result ultimately.

Extent of the May Imports.

During the month of May there were imported 134 automobiles, including 5 domestic cars, of the aggregate value of $460,000. From January to May, 1906, inclusive, 586 cars, including 30 domestic, were brought into this country, their total value being $1,935,000.

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The Week's Incorporations.

Buffalo, N. Y.—Shaw-Brown Motor Co., under New York laws, with $15,000 capital. Corporators—William Hoddick, Charles E. shaw and Garnet G. Brown.

Chicago, Ill.—O'Neill-Ollier Co., under Illinois laws, with $1,000 capital; to make automobiles. Corporators—Chas. C. O'Neill, L. J. Ollier and S. E. Gillard.

Chicago, Ill.—Wolf-Peterson Automobile and Machine Co., under Illinois laws, with $5,000 capital; to maintain garage. Corporators—C. E. Peterson, C. N. Wolf and William Pettis.

New York City, N. Y.—Motor Car Livery Co., under New York laws, with $1,000 capital. Corporators—. M. Keyser, O. H. Brown and N. W. Trapnell, all of New York City.

New York City, N. Y.—Station American Automobile Co., under New York laws, with $2,000 capital. Corporators—Clifford Longley, D. H. Gaines and S. H. Jones, all of New York City.

New York City, N. Y.—Auto Wheel Co., under New York laws, to manufacture automobile wheels. Corporators—W. S. Newhouse, A. C. Weil and G. A. Viehmann, all of New York City.

Buffalo, N. Y.—Buffalo Carburetor Co., under New York laws, with $10,000 capital; to manufacture carburetters. Corporators—W. F. White, J. G. Williams and R. A. Heussler, all of Buffalo.

New York City, N. Y.—Garage Realty Co., under New York laws, with $5,000 capital. Corporators—J. B. Elmdorf and M. T. Townsend, New York City; C. S. Kellogg, Montclair, N. J.

Cleveland, Ohio.—American Automobile Co., under Ohio laws, with $30,000 capital. Corporators—C. C. Sigler, Alfred L. Brown, J. S. Maxwell, Alexander C. MacKenzie and Charles E. Carpenter.

New York City, N. Y.—Mount Morris Garage, under New York laws, with $5,000 capital; to conduct garage. Corporators—A. G. Ibbekin, F. W. Cattrell and M. H. Ellsler, all of New York City.

New York City, N. Y.—Turner Motor Transfer and Trucking Co., under New York laws, with $100,000 capital; to do motor trucking business. Corporators—W. F. R. Turner, F. H. McConn and W. W. Cantwell, all of New York City.

New York City, N. Y.—Eagle Auto Supply Co., under New York laws, with $500 capital; to deal in automobile supplies. Corporators—J. G. Batzle and I. Redmond, Bloomfield, N. J.; W. F. Mahoney, New York City.

New York City, N. Y.—Knickerbocker Automobile Station Co., under New York laws, with $25,000 capital; to store and repair automobiles. Corporators—H. L. Constable, William Reiss and A. J. Fehr, all of New York City.

Couzens Appoints the Chairmen.

James Couzens, chairman of the managing committee of the American Motor Car Manufacturers' Association, has named the chairmen of the various standing committees of that organization, as follows:

Show—Benjamin Briscoe, chairman, Maxwell-Briscoe Motor Company; Tours and Runs—W. C. Marmon, Nordyke & Marmon Company; Good Roads and Legislation—Charles Lewis, Jackson Automobile Company; Membership—W. H. Van Dervoost, Moline Automobile Company; Publicity—Finance—J. B. Bartholemew, Bartholomew Company; Standardization—C. E. Duryea, C. E. Duryea, Duryea Power Company; Duryea Power Company.

The new headquarters of the association in the Spalding building, at 29 West Forty-second street, New York, are now open.

Owners Organize a Garage.

In order to economize on the upkeep of their cars and also to have conveniences about the country for repairs wherever they may need them, a number of Plainfield, N. J., automobilists have formed an organization under the title of "The Owners' Garage of New Jersey," with a capital of $25,000, to be incorporated, and will build a garage in Plainfield. The idea is to have the association branch out all over the State, with garages at different points so that members may be accommodated in preference to non-members in case of a breakdown on the road; of course, garage charges will be reduced to the minimum. The local organization committee is composed of Benjamin Wood, C. W. Holland, Daniel F. Ginna and George M. Kirkner.

Distressing Death of D. W. Miller.

D. W. Miller, father of W. B. Miller, secretary of the Diamond Rubber Co., was the victim of a distressing accident in Yonkers, N. Y., on Sunday last. He had just alighted from a street car and as it remained at a standstill, he walked around the rear of it and as he emerged on the other side, an automobile coming from the opposite direction, struck him squarely and inflicted injuries of such a horrible nature that he expired soon after. Mr. Miller, who was 63 years of age, had been connected with the New York branch of the Diamond Rubber Co., but despite his relationship with the secretary, he modestly kept himself in the background; he was universally liked by everyone from the office boy up.

Fickling Gets Two New Accounts.

W. I. Fickling, president of the Automobile Cover and Top Mfg. Co., returned to New York this week, with two new bows to his string—the Avery portable light and the St. Louis supplementary spring, for both of which he secured the Eastern representation while in the West. He promises that much more will be heard of them.

In the Retail World.

The Holmes-Booth Automobile Co., of Cleveland, Ohio, is erecting a garage on Euclid avenue, just east of One Hundred and Fifth street. The building is being constructed of brick.

C. Robert Moeller, of New Haven, Conn., is erecting a two-story brick building on Oliver street, 40x90 feet. It will be used in conjunction with Moeller's present garage and will cost $2,800.

The new building to be erected at 147 to 151 West Forty-ninth street and 148 to 152 West Fiftieth street, New York City, has been leased for a long term of years. The lessee is an automobile company and the building will be called the Metropolitan Garage.

The Darracq Motor Car Co., with G. M. MacWilliams as president, which has succeeded to the Darracq interests in this country, is removing from far down town to far uptown—to 1989 Broadway, near Sixty-eighth street. The building is not wholly completed but soon will be in ship shape.

Under the style the Motor Car Livery, a new concern has "opened up" at 1406 Chancellor street, Philadelphia, Pa., where unengaged private cars are to be hired by the day or hour. The management is in the hands of C. W. Rowe, formerly identified with the manufacture of the Chadwick car.

E. M. Lubeck, William H. Gay and J. O. Carsens, comprising the recently formed Lubeck Automobile Co., of Grand Rapids, Mich., are erecting a garage on Iona street, just north of Lyon street. It will be ready for occupancy July 1. The company has taken the agency for Olds and White cars.

Joseph T. Belin, formerly with the Metropolitan Motor Car Co., has "opened up" at 20 West Sixtieth street, New York City. He will handle the Mora car. Belin will make a feature of his repair department, which will be in charge of J. E. Davey, formerly assistant superintendent of the Autocar factory.

F. R. Clark, of the Clark Automobile & Launch Co., Jacksonville, Fla., has sold his interest in that concern to Henry Mohl and will retire from the automobile business. The business will be continued under the same name and a commodious garage with storage accommodations for more than one hundred cars, is one of the plans of Mohl, the new owner.

The Mitchell Commercial Vehicle Co., New York, have taken the lease of the store at Fifty-eighth street and Broadway, formerly occupied by C. A. Duerr & Co., who have removed to larger quarters at 2182 Broadway. Incidentally, the Mitchell concern has taken over the sale of the Mitchell pleasure cars, which previously were handled by the Motor Vehicle Repair & Storage Co., 121 West Thirty-first street, who hereafter will devote themselves solely to repairs and storage.

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MAKING THE GARAGE PAY

Some of the Essential Factors—Importance of Lavor Saving Equipment.

In the rapidly increasing importance of the public garage and the great amount of rivalry which it entails, it is becoming evident that only by the employment of the most modern methods both in the office and on the floor, can any measure of success in competition be assured. Hence the value of systematic methods of accounting and rigid enforcement of discipline among the employees, as well as adequate equipment and proper technical handling of the machines themselves is growing in the magnitude of its importance.

But whatever may be the degree of care which is outlayed upon the management of the business end of the enterprise, it is perfectly evident that no small measure of success must rest with the use of thoroughly modern and economical appliances both in the repair shop, which is recognized as a profitable adjunct to every garage, and on the storage floor. Also, it is becoming evident that the two must be conducted as independent departments, both for facility in operation and for the sake of systematic accounting, as in this way only can friction between the operatives of the two branches of the work be avoided, and proper track be kept of the whereabouts and usefulness of the various paraphernalia of the plant.

In the shop, it is essential that the machinery employed be sufficiently flexible, and of proper capacity to cope with whatever tasks may be taken in. And, also, it goes without saying, that if due prestige is to be maintained, only such work will be assumed as can be creditably done, and done in a workmanlike manner. What is more, it should be seen to that all tools are kept in good shape and not subjected to the abuses which are likely to result from the attempting of rush jobs and work which is beyond the capacity of the equipment. The use of lathes for drilling heavy pieces, or as extemporaized boring machines, unless done by the most skilled of mechanics, must result in poor work and the injury of the tools as well, and since the quality of the workman is not invariably an assured fact, the absolute prohibition of any but regular work on the tools designed for each set of operations should be enforced. In a similar way, there is frequently an overwhelming temptation to the mechanic who is in a hurry, to use the heavy drill as an arbor press, yet the practice eliminates the possibility of ever doing accurate work on the machine afterward. Hence, absolute and constant supervision over all work in progress in self-protection as well as in defference to the quality of work which it is desired to turn out, is essential at all times.

On the floor, on the other hand, an even more close watch must be kept upon all operations, to avoid the injuring of the delicately finished and ornamental parts of the cars, and to protect their fittings and contents from abuse. As the operations which are to be performed are for the most part rather those of routine labor than of skilled artisanship, the natural result is that they are given over to common laborers, and by this very token, require all the closer oversight. The evils and abuses attendant on the washing and cleaning of the cars are too well known and evident to require mention. One and all, they point to the never-failing desire of mankind to avoid manual labor, by the same fact, they are to be avoided with all the more care. In the equipment, there is a constantly growing scope for improvement. New devices for the hastening and bettering of the work are constantly being put upon the market, and their use will pay their cost in most cases within the first season where business is growing.

Throughout the entire establishment, proably nothing can result in greater saving of time and labor than the use of portable tools. In the shop, for instance, the portable drill, electrically driven, can be made to perform the work of three or four men at a breast drill, and that in half the time. Other operations as well, may be facilitated by the use of such tools, and in the same connection, it should be noted that the portable workbench complete, is one of the most helpful boons to the workman yet put upon the market. On the floor, on the other hand, nothing consumes more time than the cleaning of brasses. In some modern garages, this work is done entirely by the aid of portable buffing machines, electrically driven, and hauled about from car to car. The work is by this means better done, and done more quickly than by hand, and by the same token, the cost to the garageman is reduced in proportionate measure.

Such devices and many others of similar nature, are to be had upon the open market. Others will suggest themselves to the ingenious foreman and will work wonders in the management, if he is permitted to have his head in putting his ideas into execution. But what is quite as important as the amount of saving which they induce and the consequent increase in profits, the very fact that a garage is properly fitted out to carry the work which it takes in, will serve as an unfailing advertisement of the business, and hence will doubly repay its first cost in the end.

John Dupee, of Chicago, through his New York attorney, has brought suit against the Mors Automobile Co., of Paris, to recover $11,600 paid for a touring car a year ago. Dupee ordered the car while visiting in France. Justice Bischoff granted an attachment on automobile parts owned by the Mors Company and consigned to Cryder & Co., Park avenue and Sixty-third streets, New York City. The court this week denied a vacation of the injunction.

DUQUESNE GOES DOWN

Long Troubled, a Receiver Finally Steps in and Takes Charge.

Threatening clouds in the shapes of importunate creditors proved too much for the Duquesne Construction Co., Jamestown, N. Y., and last week the company filed a general assignment to Herbert L. Hunt, an attorney, who immediately took possession of the plant.

Although it had been known for some time that the company was in a bad way, the receivership proceedings were hastened by a number of small creditors who had commenced to recover, and as the company was unable to meet its obligations in full at this time, it was thought the action of the smaller creditors might precipitate a general action on the part of all the creditors, which would destroy the possibility of realizing anything near the actual worth of the assets of the company; hence, the hurried assignment. An effort was being made to reorganize the company with $300,000 capital and remove to Erie, Pa., where an option on a factory plant had been secured, but on account of these later developments the deal remains in statu quo for the time being.

Edison Makes Another "Discovery."

Not content with the damage done to the industry by the "discovery" and evolution of the "cigar box" battery which has been "about" to overthrow all precedent in the electric vehicle line for these many years, Thomas A. Edison has "broken loose" again, this time in Asheville, N. C., where he tarried long enough to tell the daily papers that he had just discovered deposits of cobalt which would enable him to reduce the cost of storage batteries by 50 per cent, and the cost of motor traffic in cities by 55 per cent. His "discoveries" were made in Lincoln, Gaston, Shelby and Jackson counties, where large and valuable deposits of mineral were located and proved by his own assays. Cobalt, it will be remembered, figures largely in the formation of the wonderful battery, which, as he takes pains to explain, will weigh but half as much as the ordinary accumulator.

Bidwell Goes with Autocar.

George R. Bidwell has been appointed general manager of the Autocar Co. Although new to the automobile industry, Mr. Bidwell in the early days of the bicycle and the pneumatic tire was one of the commanding figures in cycling and the cycle trade. Later he went into politics, becoming Collector of the Port of New York, and still later the president of the La France fire engine interests.

J. L. Aikenhead has succeeded A. E. Hoffman in the management of the Philadelphia branch of the Ford Motor Co. Aikenhead was formerly associated with Gaston Plaintiff, of the New York agency.

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Tricky and Dishonest Dealing.

Every step in the progress of the world, particularly in the development of science and the mechanical arts, brings with it opportunities for new methods of trickery and deceit, the growing complication of things rendering dishonest dealing the more readilly to be achieved and concealed. Thus, the evolution of modern chemistry has wrought wonders at the hands of the ingenious constructors of food products, and has made possible a host of abuses otherwise impossible, besides lending a new and facile tool to those who are evily disposed, while not a new or improved system can be named but has in its train a more or less unsavory following of attendant consequences. But of them all, none are more flagrant and extensive than those which prey upon the industries which cater to man's recreation. These, though possibly less revolting and spectacular than some of the other abuses, are none the less criminal in their intent, and work fully as great a demoralization with their perpetrators.

In this way, the motor car industry has suffered and is suffering both from systematic and occasional peculation. Even the actual cost of running a car under careful handling is increased to almost double its legitimate value in many cases through the intermediary of middlemen and the practice of commissioning drivers, which, of itself, must serve to keep up the retail costs of supplies, and these, coupled with other and kindred overcharges, combine to preserve motoring, as it has been from the first, an expensive pastime. But in addition to the conditions which make possible the oft-berated graft of the chauffeur, other and more alarming conditions contribute to a state of affairs which make the robbery of the untutored owner an easy matter.

With the great increase in the number of cars in use, it becomes a comparatively easy matter to so disguise an aged and decrepit machine that it will hardly be recognizable as its former self and then to palm it off as new or "slightly used." With foreign cars, this is more readily possible than with those of domestic manufacture, since their construction, and the alterations which mark each year's progress are less understood than are the corresponding marks of the American types. Thus, a coat of paint, possibly a new body, and a little doctoring of the mechanism to make it appear new, quickly transforms the old relic into a presentable and Frenchy looking machine, which under the gilded representations of the glib salesman, is capable of great things. But the method of disguising unfortunately does not extend simply to the reconstruction of aged foreign cars, being as readily applicable to new cars as to old, and so the evil effects extend not simply to those whose judgment is not sufficiently great to dictate the truth than an expert opinion is essential to any choice, but reaches beyond, and encompasses the buyers of all second-hand machines.

Recently, and after a careful examination lasting over several days, for example, detectives placed in custody a young chauffeur who had put a car in a suburban shop to have it repainted. It transpired in the course of time, that the car had been stolen from a garage, and upon the man's own admission was destined for a second-hand salesroom after its disguise had been made complete. The theft and successful spiriting away of a motor car seems an impossible task, and yet it has been done more than once, even is being attempted every day somewhere or other and frequently with a degree of temporary success which is alarming. Fully as bad in its effects upon the riff-raff of the driving fraternity, is the surreptitious use of machines by night which is undetected in many instances simply because they are returned in good condition before they are missed.

These evils, and the greater crimes perpetrated by hardened crooks who slip into positions of trust unnoticed, are bound to occur in this just as in any other line of activity. Yet somehow, they serve to bring disrepute upon the industry by a curious twist of logic, and brand it as dishonest through and through. Hence, it is to the interest of every maker and dealer to guard against chicanery of every sort in every branch of the business, simply for the good of the cause. Fake companies and fake dealers are bound to appear and work their share of the ills, and abuses; dishonest and untrustworthy employees will contribute their share also; but the firm and upright tradesman who stands for clean business will succeed in the end, and granted only his influence in stamping out the unprofitable material as fast as it presents itself to him, the industry as well, will in time be measurably rid of its greatest drawback.

To Lay Dust and Save Roads.

It seems curious that despite the fault found with American roads as they exist to-day, and the manifestly successful results which are derived in England and on the Continent, particularly in France, with tarred roads, that practically nothing has been attempted here, even in the way of experimentation. Instead, really good roads are built at great expense, and then the motorists are made to pay a heavy tax which is supposed to go toward the defrayal of the additional expense which their use on the highways is alleged to entail, although, as a matter of fact, this extra road wear due to motor traffic, never has got beyond the point of allegation. True, the oiling of roads has been tried somewhat extensively with the result of establishing beyond all manner of doubt the fact that an oiled surface is not suitable for heavy traffic, and that at best, it will barely outlast a brief season in its best efficiency, and then with an accompanyment of grease that plays hob with homes and clothing.

Tarred roads, on the other hand, have been proved to reach far beyond the successes of all other surface treatment in mat-

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ter of endurance and practically beneficial results, lasting for several years with but slight renewals, and forming a coating which both in appearance and effect is practically a natural asphalt, behaving as such, and constituting a firm and resistant waterproofing and surface protector for the road structure. In endurance, while the tar lasts only from eight to ten months in good condition under heavy wear, while the life of a good macadam surface is from eight to ten years, yet the cost as applied in France is but eight cents per square metre, as against $3 for the macadam, and this cost is well returned in the diminished cost of up-keep. Indeed, the actual results have shown an annual net gain of something like one cent per square yard with tarred roads in the matter of sweeping and cleaning. As an instance of the effectiveness of the surface in resisting the wear of traffic, it is shown that where a given area of road yielded 24 cubic metres of mud in the course of a year, an equal area of tarred road gave up only 2 cubic metres under precisely similar conditions of use, a large part of which had been tracked in from adjoining highways not tarred.

The process of application is comparatively a simple one with modern methods. A suitable machine is employed which sprays the boiling tar over the surface in an even coating, which is then reduced and worked into the covering of the road by means of brushes mechanically actuated and weighted to ensure the thorough permeation of the coating. Such an aparatus can be made to distribute the coat over approximately 3,000 square yards per hour. The surface must, of course, be dry and free from dust, and under those conditions one day of setting will suffice to complete the treatment. Thereafter, no attention is required other than the periodical cleaning which all roads require, until the beginning of another season, when a repetition of the process, less thorough in its nature than the first, serves to renew the layer of tough resistant material, and leave the surface even more perfect than before. In this way, not simply is the condition of the road in all weathers improved, but its life is lengthened by the protection of the foundation alike from the elements and the abrasive action of traffic.

It is not enough to construct good roads at enormous costs to the people, and to maintain them by time-honored methods which seek to correct rather than prevent evils which are bound to exist so long as the cause remains undisturbed. The life and existence of the surface should be cared for with all the solicitude which is expended in the original outlay. When that is done, the true economy of highway construction and maintenance will have been discovered, and the country will have reputable highways not for a month or a year, in any given locality, but continuously and universally.

Liability of Passengers.

In the past when a motorist has been haled to court to answer for having violated the law, the guests who happen to have been in the machine have been permitted to depart without any other unpleasantness than the loss of an anticipated outing. But a majority of the Supreme Judicial Court of Massachusetts has recently decided that this should not be, in the case of the Commonwealth vs. Roland H. Sherman, as chronicled. At variance on so many other fundamental points of legal procedure with other states of the country, the Judiciary of the Bay State has suddenly awakened to the fact that it was meekly following precedents in allowing the passengers of an apprehended car to go scot free.

The decision raises two questions; first, when the owner places his car at the disposal of a friend and the latter uses it in company with the chauffeur, is the borrower of the vehicle responsible for any infraction of the speed or other regulations? This hardly calls for comment as under such circumstances the master's guest is for the time being in the master's place and acting as such. Responsibility for accident or violation of the law would consequently devolve upon the then master of the chauffeur, or of the vehicle. Secondly, when the owner is operating his own car Are his guests responsible for the law breaking in case he is arrested for overspeeding? The Supreme Court of Massachusetts has decided that they are, provided they "know and allow" the operator to proceed at an illegal rate of speed.

In other words, it is the bounden duty of everyone of the owner's guests to remonstrate with him for running too fast and if such remonstrances be unavailing, to threaten to get out. If he still persists in running more than the eight or ten miles an hour permitted by law, the guest is liable for having "sanctioned, connived at and benefited by an offense against the law." This is not a totally new doctrine! it is merely an extension of what has long been the settled law on both sides of the Atlantic regarding the responsibility of the passenger in a horsedrawn vehicle for accidents. It has arisen, both in the case of the railway train in which it is universally held that the negligence of any member of the train crew is not to be imputed to the passenger, and in the case two or more people driving in a carriage in which the contrary has been held, with the important qualification, however, that the passenger thus made responsible for the driver's negligence must have been seated beside him in an equally good position to observe what was going on. Such cases have most frequently arisen where people have negligently driven upon a railway crossing and been killed by a train. Although the driver had exclusive control, the passenger was so placed as to be able to hear and warn him of the approach of a train and a recovery of damages has not been allowed under such circumstances.

Reasoning by analogy, though it requires a violent stretch of imagination to be able to place the cases upon the same basis, the Massachusetts judges have come to the conclusion that all persons in an automobile are guilty of having violated the law when the owner or operator does so. In one case failure to be on the alert and prevent accident in case the driver fails to do so merely bars the right to recover damages; in the other it declares a person guilty of a crime that was perpetrated without his sanction, whether active or passive, for mere presence at the commission of a misdemeanor without an attempt to prevent it does not render such a person guilty under any established definition of an accessory or joint principal, whether common-law or statutory. Could such a decision become accepted as law its application would be revolutionary. Extending it to New York, for instance, the man who sat in a train and permitted his neighbor to expectorate on the floor would likewise be guilty of the same offense. It is evident that Massachusetts' interpreters of the laws have been straining at gnats.

It is amazing with what frequency the pedigreed dog strays in the way of the automobile. The common garden variety that is "just dog and nothing more" appears to have sufficient sense to avoid the car at all times. At any rate, most of the dogs killed have a gilt-edge line of ancestors and their value soars correspondingly when the time to settle comes around.

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Picturesqueness of the Route of the Glidden Tour



IN NEW HAMPSHIRE AND NEARING THE WHITE MOUNTAINS.

From the reports of the sub-committee of the American Automobile Association, which last week returned to New York, after a two weeks' "survey" of the route of the A. A. A. tour and Glidden cup contest, he will be a lucky fellow who is able to participate.

The first part of the route, from Buffalo to Saratoga, with intermediate night stops at Auburn and Utica, is comparatively well known to tourists, but the remainder of the route, from Saratoga to Bretton Woods, is practically new territory. "Good roads, glorious scenery, a hospitable welcome," is the keynote of the report of Augustus Post and Judge James B. Dill, a sub-committee entrusted with the laying out of this part of the route, and who made the journey in their White steamers.

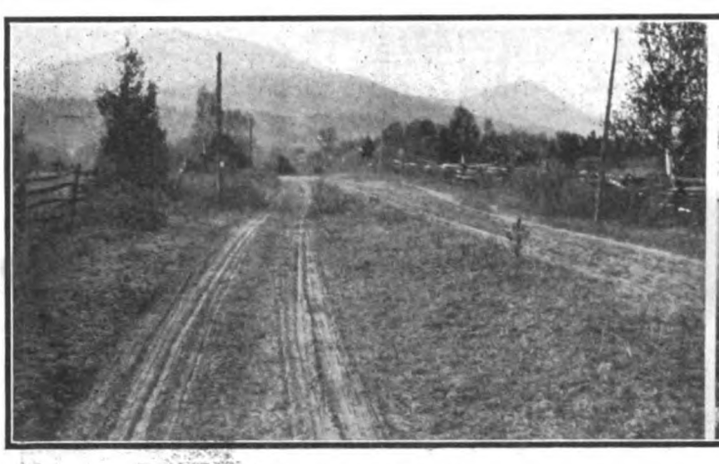
In general, the route from Saratoga to Montreal is over the old Albany and Montreal stage road. This stage line was a very prosperous institution until the Delaware & Hudson Railroad was built through, some thirty years ago. The road, however, is still kept up in good condition, for it is the great natural highway running north and south, skirting as it does alternately Lake George, Schroon Lake, Lake Champlain and the Richelieu River. From Montreal to Quebec the road follows closely the north bank of the St. Lawrence River. From Quebec to the terminus at Bretton Woods, the route is that taken by Judge Dill in 1904 on his memorable pioneer trip. In detail, the route is as follows:



IN CANADA NEAR THE MAINE BORDER.

From Sataroga the route lies through a rolling farming country to Glens Falls, from which point the country becomes somewhat more rugged and the going is over a plank road to Caldwell, at the foot of Lake George. From this point the road bends away from the lake and passes through Warrensburg and Chestertown, and following the Schroon Lake and the Schroon River to Underwood. By this time the tourists will find themselves in the heart of the Adirondack Mountains, where rugged peaks tower thousands of feet on either side. After a few miles of the mountains, the tourists will reach Elizabethtown, where they will spend the night. There are three large summer hotels here and the tourists should be accommodated with comfort. Elizabethtown is seven miles from the railroad, but there is a fine State road connecting the night's stopping place with the railroad station and the sub-committee have arranged for an automobile service connecting with the railroad at intervals of half an hour. On leaving Elizabethtown the next morning,

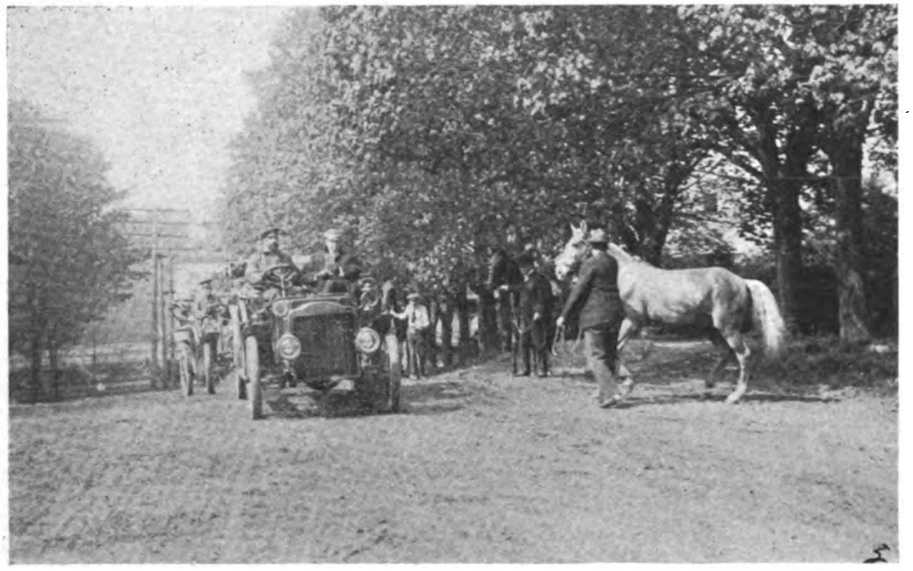
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IN NEW YORK STATE.



NEARING MONTREAL.



"AUTOMOBILIZING" HORSES IN THE ADRIONDACKS.



IN THE CANADIAN WOODS, NEAR ST. GEORGE'S.

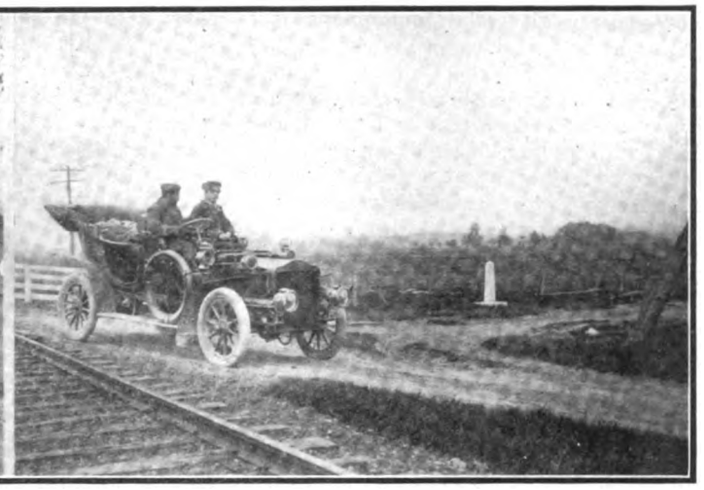
the tourists will emerge once more into the open country near Keeseville. A mile beyond this town, by a detour from the route of about 100 yards, they will be able to visit Ausable Chasm, one of the great scenic wonders of New York State, where an hour or two can be spent very pleasantly. The night stop will be at the great Hotel Champlain, which stands on the old Bluff Point of revolutionary days. This is the highest point for miles around and a fine view is obtained of the lake dotted with innumerable islands and the Green Mountains rising beyond, in the one direction, and of the Adirondacks in the other. There are fine tennis courts here and those interested in the sport would do well to come prepared for the game. In fact, the committee hopes to arrange a tournament here to be participated in by members of the touring party. For, be it remembered, "a good time" for the tourists has ever been the aim of the committee. A boating party on the lake will be another way of spending the half day here for, as that day's run is of but 35 miles, it is probable that most of the tourists will arrive by noontime. North of the Hotel Champlain the route follows the lakes, although at some distance away. At Rouse's Point, a mile from the boundary line, it will be necessary to comply with certain formalities necessary to entering Canada. Thes formalities are two-fold. First, it is necessary to secure a certificate of exportation from the United States authorities so that no duty will be levied when the tourists return to the States and it is necessary to give bond to the Canadian government that the machines are not intended for sale in Canada. Also, the Province of Quebec has an automobile law, modeled after those in some of the States, requiring licenses, registration, etc. All of the necessary arrangements will have to be made in advance by the committee so that the tourists will not be delayed more than a few minutes.

As soon as the boundary line is crossed, the character of the country changes considerably. French is the prevailing language and the predominating influence of the church is everywhere manifest. Every

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CUSTOM HOUSE AT ROUSES' POINT, N. Y.



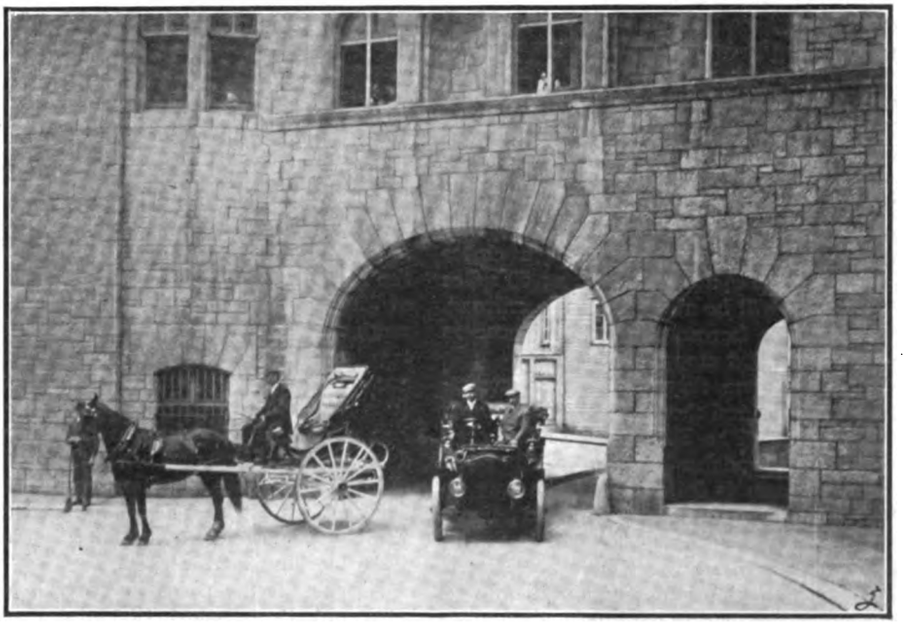
POST MARKING BORDER, NEAR ROUSES' POINT.

little town has an immense church with a tall spire visible miles away. Next in prominence are the monasteries, convents and similar ecclesiastical institutions. Shrines are seen are frequent intervals along the roadside and here and there a peasant paying his devotions before them. At St. John commences the picturesque Chambly Canal, which runs between the highway and the Richelieu River. At Chambly, where is located a picturesque old fort dating back to the seventeenth century, the road bends westward to Longueuil. From this town the tourists will cross the St. Lawrence River either by ferry or over the Victoria Bridge to Montreal, where the Place Viger and the Windsor Hotels will be headquarters. A day has been allowed here for seeing the sights of Montreal and vicinity.

Leaving Montreal, the road follows the Assomption River for a few miles and then runs along the bank of the St. Lawrence River as far as Three Rivers, a night stop. Here the headquarters will be at the Hotel Du Fresne, with additional accommodations in one of the steamers of the Richelieu & Ontario Navigation Company, which will be moored at the quay directly in front of the hotel. The committee hopes to arrange to have a concert on the deck of the boat during the evening, thus furnishing another pleasing feature. From Three Rivers the route continues to follow the north bank of the St. Lawrence River. Most of the going is through a level country, but near Quebec the country becomes more rugged, and the road lies along a cliff not unlike the Palisades of the Hudson. It is certain that the two days allowed in Quebec for sight-seeing will be appreciated. The city was founded in 1608 by Champlain and many landmarks of the old days remain. As a historian has said, "Quebec has seen more fighting than any other place on the North American continent," and, as might be expected, many historical recollections center around the city. The tourists will all probably take time to see the spot where General Wolfe died in the hour of victory and also the spot where



TEN MILES FROM QUEBEC.



IN THE HOTEL COURTYARD AT QUEBEC.

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the American General, Montgomery, lost his life in the assault upon the citadel, December 31st, 1775. The churches are also of interest and Parliament House is worthy of a visit. Headquarters will be at the Chateau Frontenac, located on an eminence commanding a magnificent view of the river and the surrounding country.

From Quebec the road leads toward home. After crossing the ferry to Levis there is a fine stretch of macadam road, originally built for military purposes, to St. Henri. From there the road goes through an agricultural country to Scott Junction, where it meets the Chaudiere River. From this point on logging operations are seen on every hand. The streams are full of logs and almost every town has its pulp mill. The road leads through the beautiful Chaudiere Valley as far as the Jersey postoffice. Here begins a gradual ascent over the great divide, separating the waters which flow into the St. Lawrence from those flowing into the Atlantic Ocean. The climb reaches its highest point in front of the Line House through which runs the boundary line dividing the Province of Quebec from the State of Maine. The last half of this day's run is through a wild country. Houses do not average closer than ten miles apart and for over 50 miles the tourists will be away from the railroad. Fifteen miles beyond the Line House is Jackman, a night stopping place.

From Jackman there is another succession of grades and then a long ride through the woods to The Forks, where the road meets the Kennebec River. This swift flowing stream is followed all the way to Waterville, a night's stopping place. From Waterville, the road is retraced as far as North Anson where the Kennebec River is crossed. Rangeley is not many miles away in a direct line, but as the intervening country is owned by lumber companies who are adverse to the building of roads through their property, because of the danger of forest fires, the way leads circuitously through North Newportland and the Dead River region. This is one of the most picturesque parts of the entire journey. The road is lined on either side by white birch trees; mountains on all sides lift their peaks into the clouds; and deer and other game abound. It is here that the tourists will feel in fullest degree the fascination which is expressed by the popular term "The Call of the Wild." Those who make this part of the trip will thereafter consider it rather tame sport to scorch through thickly populated country.



APPROACHING QUEBEC.

The Rangeley Lake Hotel will shelter the tourists for two nights, as a day's stop will be made here. This is one of the greatest regions for fishing in the country; all of the streams and the lakes abound with trout and salmon. The last day's route leads through the woods by way of Phillips and Weld to Dixfield on the Androscoggin River. Emerging from the forests, the tourists will view once more factories and similar evidences of commercial activity. From Dixfield the road follows closely the Androscoggin River all the way to Gorham in the State of New Hampshire. During the last half of the day's journey the peak of Mt. Washington will be in view, a mammoth marker of the terminus of the 17-day trip. From Gorham there is a 30-mile drive around Mt. Washington to Bretton Woods. It is needless to say that the roads on this last stretch will be in fine condition. In fact, Messrs. Post and Dill while still ten miles from the Mt. Washington Hotel came across Mein Host Anderson, attired in rubber boots and overalls, bossing a gang that were working on the road.

As regards the roads in general, Messrs. Dill and Post report that there are but few stretches of bad going on the entire journey. In Maine particularly, the roads are in fine condition, because here, more so than in New York State, all supplies for many towns along the road come in over the highways. It is true that the roads are narrow in many places but there will be no trouble about passing if tourists extend to one another the courtesies of the road.

Tall Tale of a Small Goat.

William Reuss, of Los Angeles, Cal., wants no more mascots for the Oldsmobile. Several weeks ago Reuss and Bert Dingley took a trip into the country and a friend gave them a mascot in the shape of a small goat. It was hardly eight inches high at the time and children for blocks around the garage called to play with it. But it so happens that goats grow, and this particular goat grew very fast. With the growth came the regular goat appetite. Last week the goat chewed up Reuss's fishing tackle, a few days later a $9 shirtwaist was its evening meal and very recently when the animal made his breakfast on two automobile tires which cost $40 each, Reuss began looking for someone who wanted a first-class mascot. Applicants can find Reuss at the White garage. This goat is not of the Catalina variety and cannot be "et," otherwise it would have been barbecued long ago.

Leroux to Call for Fenders.

"That automobiles may kill Toledoans less abruptly," is the wish of Councilman Leroux, of that city. He has had a conference with the mayor, and as a result will introduce in the city council an ordinance requiring all automobiles to be equipped with a sort of "cowcatcher," built of strong nets, fastened on the front of the car low enough so that if a person steps in the way he will be caught up with it. It is not stated whether or not the councilman has ever had to step out of the path of an automobile.

"Getting Busy" in Virginia.

After four hours of laborious work, the city council of Norfolk, Va., has decided at what legal speeds automobiles may travel upon the streets of that city. On a few specified streets ten miles an hour is allowed, on all others, twelve miles. Cars must slow down to six miles an hour when turning corners. They must be registered at the police station, the last session of the Virginia legislature having given cities the privilegesof enacting their own automobile ordinances, and must carry number plates.

Club Formed in Canton.

At a meeting last week attended by nearly all the automobile owners in Canton, Ill., the Canton Motor Club was formed. These officers will guide the destiny of the club: President, T. C. Hays; vice-president, T. L. Greer; secretary-treasurer, T. T. Smith; directors—T. C. Hays, T. L. Greer, E. F. Swearington, F. M. Mendenhall and James Donn.

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RETURN OF THE REOITES

Megargel and Fassett Complete their Strenuous Journey—Ten Months Enroute.

Percival F. Megargel, of Rochester, N. Y., and David F. Fasset, of Lansing, Mich., are back in New York, after their criss-crossing continental journey. On August 19, 1905, they left Herald Square, New York City, in a 16 horsepower Reo car, to drive to the Pacific Coast and back. On Saturday afternoon last, June 9th, the tourists, in the same car in which they started, arrived back in Herald Square, travel-stained and tired, and with a mileage of 11,748 to their credit. Their return was not widely heralded, but the Reo representatives in New York made the most of it. They met the intrepid travelers on the outskirts of the city with a train of Reos, each bearing a big banner on the rear, which did not bear a "strange device" but a sentiment suitable to the occasion and with "Reo" emblazoned in immense letters. The escort trailed the travelers into the city, stopping but once and then for the inevitable photographers. During the halt, the passengers in the cars gave voice to "cheer upon cheer. The accompanying picture suggests that it was the camera artists who were cheered, but this is merely an optical illusion.



THE RETURNED TRAVELERS AND ESCORT FACING THE CAMERAS.

During the ten months they were away on their double transcontinental trip, Megargel and Fasset crossed fourteen States and territories and half a dozen mountain ranges; had been buried in snow drifts and engulfed in quicksands, had fought mountain lions and shot coyetes and wolves and, incidentally, traveled more miles in one continuous journey in the United States than any other automobilists.

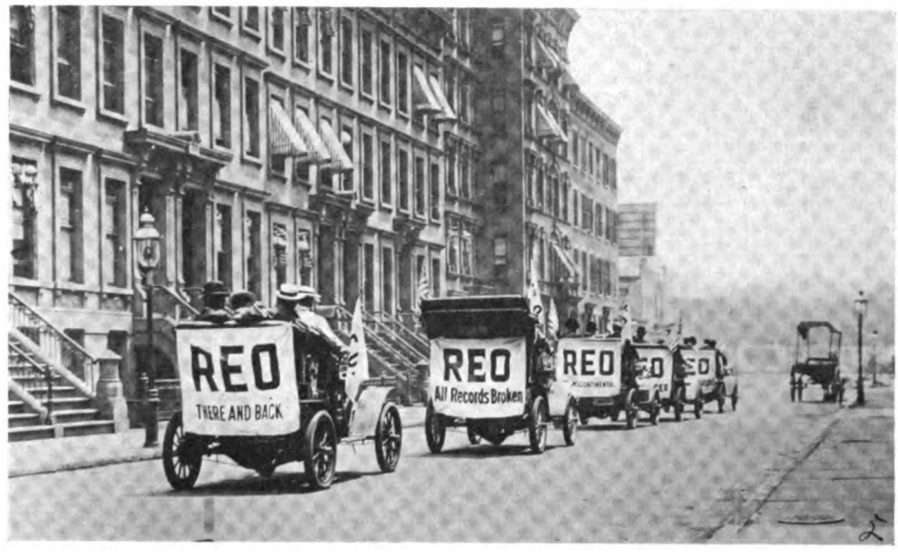
Their journey was made in the interests of the Reo Motor Car Company and good roads. The body of the car in which they traveled was designed so that at night it could be turned into sleeping quarters. The car fairly bristled with apparatus for estimating speed, distance, altitudes, directions and meteorlogical changes, so that their experiences should be of some benefit to automobilists who may have occasion to travel over the trail they have blazed.

Leaving New York, Megargel and Fasset traversed the State, thence through Pennsylvania, Indiana, Ohio, Illinois, Iowa, Nebraska, Wyoming, Oregon, California, New Mexico, Colorado and back to Omaha, Neb., thence over the route taken on the trip out. From Portland they made an extra thousand miles along the Pacific Coast to San Francisco. Megargel claims to be the first motorist that ever crossed Mount Hood, and the first to cross the California Desert, east of Bagdad; the first to cross the great American desert in Arizona, and the first to climb the Ratan mountains in New Mexico.

Of course, many obstructions, necessitating tiresome delays are to be encountered on a trip of this character and Megargel and Fasset and their Reo car were not immune. The first delay was met with in Wyoming. After fording Bear river, and crossing the Continental divide, the Sierra Madre, Anslen, Wasatch and Snowy range mountains, the tourists were held up five days at Bitter creek, where a heavy rain had swollen the naturally treacherous ford and caused the creek to rise nine or ten feet. To proceed they had to build their own road through parts of the State, and they have many stories to tell of getting through almost impassible clay canons, fording dangerous freshets and the like.

Wyoming was not the only State to cause hardships. They were met without number while going over the Cascade mountains in western Oregon, and these sturdy travelers were taxed almost to the utmost limit of endurance when crossing the great American desert, where sandstorms and all the combined pent-up fury of the raging elements seemed to turn loose on the tourists. According to the motorists, they were lost several days in the mountains of Arizona, without food or fuel. Christmas Day was spent in raising the car out of the Parde Canon, by means of a windlass and cable that formed part of the machine's equipment.

For three weeks preceding January 29th, the car remained buried in the quicksands of the Rio Puerto river, but on that date a band of Apache and Navajo Indians succeeded in releasing the sucking grip of the sand, almost after Megargel and Fasset had given up hope of ever getting their car again. Its recovery was due only to a change in the weather. The snow on the mountains melted and caused the river to become a raging torent, which washed out the quicksands, and enabled them to continue their journey, without a repetition of their previous hardships.



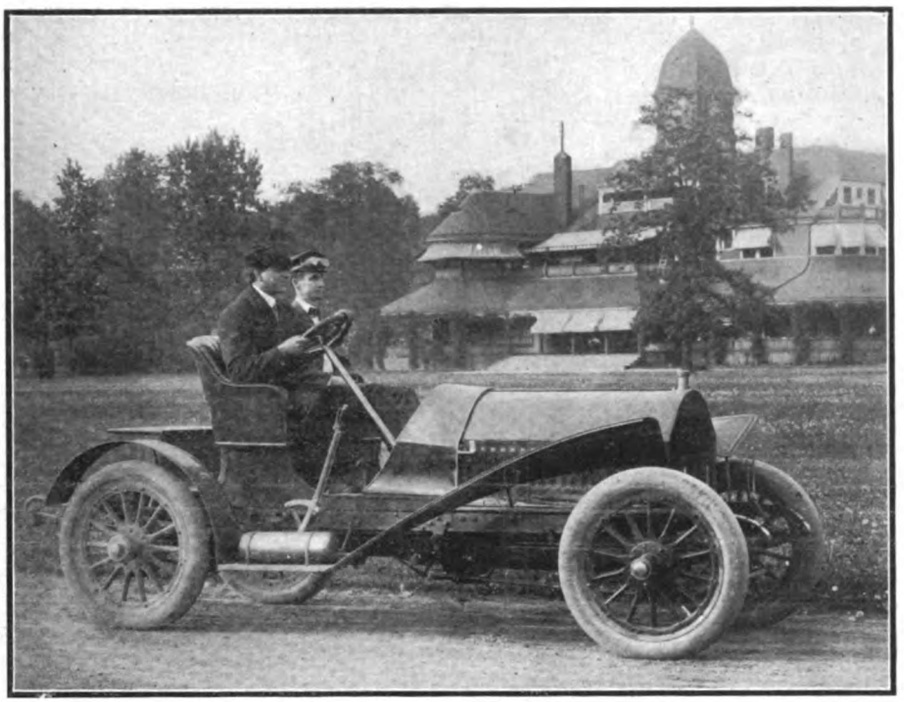
MEGARGEL'S ESCORT—REAR VIEW

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FIRST CUP CAR APPEARS

Comes from the Wayne Factory and Proves to be Practically a Stock Car.

The Wayne Automobile Co., of Detroit, are first in the field with their Vanderbilt cup car, which is shown by the accompanying illustration. Two cars, exactly alike, are entered in the elimination trials. These are the regular stock chassis of the Wayne



50 horsepower touring car, although, of course, some minor changes and modifications have been made to enable the cars to stand the terrific strain of a hard road race. The changes are such, however, as the Wayne company will gladly make on any of their Model F cars.

In the picture, William Kelly, general manager of the concern, who designs all the Wayne models, is at the wheel; his companion is J. S. Draper, sales manager of the company. The "Wayne Twins" have been shipped to New York so that they can become acquainted with the difficulties of the Vanderbilt cup course during the next two or three months.

Capsizing and an Added Danger.

Enough has been said of the danger attendant upon the use of naked flame in the vicinity of an automobile which is undergoing repairs to fill several volumes, yet fires continue to occur from this very cause. But a phase of the danger which is seldom dwelt upon is that which exists when a car has become disabled in an accident of any sort. In such a case, and particularly if the machine has been overset, there is every likelihood that a greater or less amount of gasolene has been spilled upon the ground and that it may become ignited is properly tempted.

A recent case which serves as an illustration of the point is that of a car which had slipped backward down a hill owing to the failure of the sprag, and capsized. Several hours later a rescue party approaching, while still some hundred feet from the car, when one of them tossed a lighted match into a gutter on the surface of which was a thin film of gasolene which had escaped from the car. This instantly caught fire, and the flames ran like a powder train to the car itself which was shortly consumed down to the last vestige of everything burnable.

New Road Assured near Atlantic City.

Success of the project to build a twelve-mile boulevard on the mainland opposite Atlantic City, N. J., is assured as a result of a meeting held last Saturday evening, at which mayors of five shore towns through which the proposed highway will pass, agreed to every proposition of the promoters of this boon to automobiling and driving. The road will extend from Absecon to Somers Point, and there connect with the new bridge to be built across the Great Egg Harbor Bay.

New Officers and Better Roads.

Better roads for Cedar Rapids and Linn county, Iowa, is the slogan of the Cedar Rapids Automobile Club, for the coming year. This was agreed upon at the annual meeting of the club, when the following officers were elected: President, Edward C. Clark; vice-president, George Stuart; secretary, G. L. Rothrock; treasurer, J. L. Bever; captain, Louis J. Baerthel.

"FOR HIRE" CARS INCREASE

Now Overflowing the New York Stand—"Hacking it" Shows Signs of Revival.

For more than three years past New York has boasted an automobile hack stand. It is located at Times Square, where Seventh avenue crosses Broadway and the roped-in space set aside by the traffic squad has been sacred to the automobile ever since this dead line was established. But in all that time the number of cars waiting for fares has been about the same; three in the morning and six in the afternoon and they have been the property of three of their drivers whose studs consist of two cars each. But recently the number has been augmented to such an extent that they have overflowed the "anchorage" and on pleasant evenings they line the east side of Seventh avenue for a block or more. It is not the enterprise of any one man or company but just an aggregation of free lances and the standing room along the curb appears to belong to anyone who gets there first.

The accession does not represent an influx of professionals into the business for discreet inquiry among the new comers reveals the fact that they are only in the game temporarily. It is something "on the side"—in short, a new-old species of graft, for these drivers are in the employ of the owners of the cars that they are offering for public service. They are drawing a good salary, but they are burning their employer's gasolene and lubricating oil and wearing out the car's tires to swell their monthly stipend a bit more. Their irregular appearance on the "stand" is explained by the fact that it only when the owner and his family happen to be away that an opportunity offers. Some of them go so far as to say that they have their employer's permission to "hack it" in this manner on condition that all supplies are paid for and the car kept in perfect condition, but that a man who can afford to maintain a high priced car and pay well for keeping it should permit his servant to wear it out for his own profit, sounds very thin and is probably offered as a "blind" by the grafting chauffeur who fears discovery.

However that may be, the handful of American cars, some of them of not too reputable appearance, that have graced the neutral zone within the ropes with their presence early and late for the past three years, have now found a horde of competitors and they are of all kinds, from the light touring car up to the luxurious closed vehicles, the selling prices of which mount into five figures. Despite the great difference in the character of the cars, however, there is a uniform charge of $5 an hour and the chauffeurs are ready to take parties anywhere, though the favorite trips are to hostelries 15 to 20 miles out of town.

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The New York Orphans Have their "Automobile Day."



"JUST ORPHANS."



THE MAYOR AND MARSHAL CUTTING.

There are three times each year that it it is pleasant to be an orphan in New York City. Naturally, one is Christmas, and another is circus day at Madison Square Garden; but judging from the lively enthusiasm 1,240—that's the official count—homeless big and little tots displayed last Wednesday, the best time of all is when the New York Motor Club dispenses charity by giving the orphans of Greater New York their annual treat at Coney Island.

Last year the New York Motor Club set the initiative by designating June 6, each year, as Orphans' Day, a day when charitably inclined automobile owners are supposed to deny themselves one day's use of their cars and donate them to the fatherless and motherless children to whom one day of unalloyed pleasure means a cheery break in the tedious humdrum of their daily existence. The rapidity with which the idea was taken up by automobile clubs throughout the land shows that Orphans' Day hereafter will be as much a fixture and as pleasing an one as other specially designated days and holidays. On Wednesday of last week the New York Motor Club gave the orphans of New York their second annual outing, and although there were brass bands and flags to liven up the parade the most pleasing characteristic of it all was that each car was not labeled and tagged with advertisements of the club and its charity, which tended to mar the affair last year.

There only is one cause for regret—the reluctance of owners to loan their cars for just one day. Of the twenty thousand automobile owners in New York City, less than one-half of one per cent. responded, and nearly all of these were New York dealers, who furnished their demonstrating cars at a time when it probably meant loss of money to them—more to their credit.

Seventy-four touring cars, six runabouts and four trucks, each loaded to its full capacity with a mass of wriggling, scream-



BIRD'S-EYE VIEW OF THE SPECTACLE IN CITY HALL PARK.

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ing, laughing, shouting boys and girls, some sad eyed, 'tis true, but all with that joyous look of expectation and anticipation of an epoch making day in their lives, lined up at the rendezvous at Eighty-sixth street and Broadway. Waving flags and singing and with bands from the Hebrew Sheltering and Guardian Society and the Leake and Watts Orphan Asylum, playing national and popular airs, the procession moved down Broadway to City Hall park, where the cars passed in review before Mayor McClellan. The cars paraded in three divisions. The "Red" division was composed of children from the Hebrew Sheltering and Guardian Society, marshaled by Frank J. Griffen. Then came the "White" division under the superintendence of Marshal Ball. This group consisted of children from the Hebrew Orphan Asylum, Miss Hefter's, Mrs. Oliver's, Miss Michael's private homes and the Golden Hour Home. The "Blues" were under the care of Dr. C. C. Moore and was made up of different branches of the Children's Aid Society. In the last section the cars carried children from the Leake and Watts Orphan Asylum, the Howard Mission and other charity organizations. In Brooklyn the paraders were joined by the little cripples from the House of St. Giles. General J. T. Cutting, of the Oldsmobile Co., of New York, served as grand marshal of the turnout.

After being reviewed by the Mayor, the cars, led by an escort of several motorcycle policemen, sped quickly down to Coney Island. To detail what the children did there would be difficult. Ex-Sheriff Buttling and ex-Senator Reynolds met the little ones at Dreamland and gave them free entry to everything. Needless to add they thoroughly enjoyed themselves, and especially when they were summoned to the big ball room to attack the elaborate dinner George A. Kessler had generously provided for them.

Only by the presence of mind of Policemen Kennedy and O'Rourke and several of the larger boys was a threatened panic averted in the "Creation." The children had been warned to keep quiet when the lights went out, but when it got all dark and the explosions came and a mountain blew up there were cries and shouts and a general tendency to stampede. The two officers who had been detailed to look after the children immediately started up a handclapping. The big boys took it up and soon the place was ringing with cheers as the "Dawn of Creation" was hurried on.

Along toward evening cars could be seen returning to New York. They were loaded with a lot of tired, voiceless and sunburned children, but withal blissfully happy at having enjoyed a gloriously eventful day.

Motorists of Wilmington, N. C., have organized the Wilmington Automobile Club. It is planned to erect a clubhouse and garage at Wrightsville Beach, an adjacent resort, during the summer.

GERMAN WINS HERKOMER CUP

He Drove a Car of Moderate Power, too—Percy Pierce well up.

Although the contest for the Herkomer cup came to an end Tuesday, 12th inst., with a series of speed trials in the Furstenried park, near Munich, Bavaria, the full scores of the 155 competitors that started in the tour on June 6, will not be figured out for several days yet. But enough is known to say that Percy Pierce, of Buffalo, N. Y., the only American who drove an American car—a Pierce Arrow, of course—in the contest, will be among those who are credited with perfect scores.

The first stage of the journey was from Frankfort-on-the-Main to Munich, with a lunch stop at Nuremberg, a total distance of about 251 miles. The start was made from Frankfort at 5 o'clock Wednesday, the 6th, the cars being sent away at two minute intervals. All the starters got away without incident. At Wurtzburgh, Arthur Blackburne, of England, who started third, had the lead, and Oscar Heymann, Berlin, withdrew from the contest because his car was disabled. At 11 o'clock 120 of the cars which had started reached Nuremberg for luncheon. In rounding a curve near this place the car belonging to Herr Kienle skidded and struck a tree, and Herr Schler, one of the occupants, was thrown out and received a fracture of the skull. The first to reach Munich, the end of the first day's journey, was Poege, of Chemintz. Ladenberg, of Mannheim, was second; Matnis, of Strassburg, third; Weingard, of Dusseldorf, fourth, and Hoenner, of Stuttgart, was fifth. Percy Pierce arrived in good condition shortly after 5 o'clock.

On Friday, according to meagre cable reports, 120 of the tourists reached Vienna, the end of the third day's tour, in safety, and Pierce was among the number. Dreher of Austria, and Martino of Italy, arrived shortly after 10 a. m., and the others came straggling in later.

The long tour ended at Munich on Tuesday, Pierce arriving at 6:30 p. m., with his Pierce Great Arrow in good condition. The other cars were slow in arriving and as the general result of the competition requires complicated calculations for its determination, the complete results will not be announced until later.

In the afternoon some speed trials were held in Furstenried park, near Munich, and the best time was made by Poege, of Chemintz, who covered the distance—three and one-half miles—in 3 minutes 8 seconds.

Late yesterday afternoon a cablegram was received stating that the committee had awarded the trophy to Dr. Rudolph Stoers, of Zwickan. Dr. Stoess drove a twenty horsepower car and was the last starter. Second prize was given Emil Neumaier, of Stuttgart, while Willy Poege, of Chemintz, was accorded third place.

Jones Gets the Gold Medal.

Although several months have elapsed since the speedometer trials conducted by the Automobile Club of Great Britain and Ireland were completed, the judges finally have been compelled to give the highest award—a gold medal—to the Jones speedometer. Nine makes of speed indicators were represented in the trials, which included tests over several thousand miles on the road and finished with a lengthy micrometer test by the committee. The Jones well deserves the honor as it finished without having a single flaw discovered in its mechanism. The second award, a silver medal, was given the Elliott Motormeter, an English conception, and a special gold medal for excellence of design, workmanship and accuracy, was given to the maker of the Kirby speedometer. The Jones was entered by its London agents, S. F. Edge & Co.

Driving Over Stone Patches.

Careful drivers usually exercise considerable caution in running their cars over newly laid patches of sharp stones, but the method employed does not always result in the minimum of damage to the tires. Generally a shift to low speed is made, the car having been brought almost to a halt before entering upon the bad portion and it is run over in gingerly fashion. That this can be improved upon is evident for the strain imposed upon the driving tires is greater under such circumstances than if the car were run over the stones at speed. This may best be done by dropping down to a fairly moderate pace approaching such a place in the road and withdrawing the clutch entirely before the front wheels enter it. The car's momentum will be sufficient to carry it across. By this method the drivers are relieved of all strain except that imposed by rolling over the stones idly with the dead load. Where the patch happens to be too long for this procedure or the presence of an up grade makes it out of the question, slow and careful driving is the only alternative.

Wilmington Elects and Resolves.

That a strenuous campaign for better streets in the city of Wilmington and better roads in the State of Delaware, will be waged by the Delaware Automobile Association, was decided at the annual meeting of that organization, held in Wilmington last week. In line with this object the association passed a resolution urging the city officials to repair numerous "demoralized" streets and to keep them in "apple pie" order. The club also placed itself on record as opposing reckless driving. The election of officers resulted as follows: President, William G. Spruance, Jr.; vice-president, Ernest Dupont; secretary-treasurer, W. C. Jackson; executive committee—John Bancroft, John B. Bird, E. M. Hoopes, E. E. Dupont, Charlec C. Kurtz, William K. Dupont, J. J. Slatterthwaite and Elmer E. Mitchell.

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FOR THE GLIDDEN TOUR

Rules Governing Awards of Glidden and Deming Trophies—Supplementary Contests.

Fuller details concerning the rules and regulations to govern this year's tour for the Glidden Trophy have just come to light in the shape of a pamphlet issued by the American Automobile Association for the information of the contestants. Incidentally, the total mileage of the Glidden tour proper will be 1,143 miles instead of 1,029 miles, as stated last week, owing to the inadvertant omission of one of the instalments from the published schedule—that lying between Waterville, Me., and Rangeley Lakes, a distance of 103 miles.

In addition to the Glidden Trophy itself, there will be not alone the trophy put up by Paul Deming, chairman of the A. A. A. touring committee for the car suffering the lowest penalization between Buffalo and Bretton Woods, but there will be at least six others. One of these is for a hill climbing contest, but the wording of the regulations makes it optional whether this shall take place or not. Paragraph 19 states that "If, upon the arrival at the end of the tour, the committee finds that a hill climbing or touring course is available, it may arrange a special contest for the participants of the tour, if, in the opinion of the committee, such a contest is advisable or necessary to determine to which entrant the Glidden or or other trophy or trophies should be awarded. In awarding the Glidden trophy credit will be given to each car for its performance as a touring car, since the test is for the purpose of determining the touring qualifications of each contesting car. The committee may also select one or more special runs during the tour in order to complete a total of 1,000 miles."

The language of subdivision A covering the Deming trophy is somewhat ambiguous but by "lowest penalization under the rules" may doubtless be taken to mean the rules of the Glidden tour itself as no special regulations for this competition are announced, except that "repairs," replacements, replenishments and inspection in garage will be permitted" in distinction to the strictness of the Glidden tour rules. The other trophies put up are as follows: One to the club from whose membership the largest number of entries are received in proportion to the total active membership of the club. (c) One trophy to the winner of a hill climbing contest. (d) One trophy to the winner of a brake test; one trophy to the winner of an obstacle race. (f) One trophy to the car having the least tire trouble throughout the contest, and (g) one trophy to the car which shall complete the tour from Buffalo to the end of the tour under the most adverse conditions and with the greatest number of tire and mechanical troubles, this, of course, representing the booby prize.

Not alone must mud-guards and mufflers be carried, but also full equipment in accordance with the makers' catalogue specifications and the four passengers carried must average 125 pounds weight or the deficit be made up in the shape of ballast. "And shall have touring car bodies with tonneaux" is added, which provision ended the controversy over the eligibilty of small cars. The most drastic provision is that prohibiting the doing of any work on the car except during the latter's runing time. It reads, "No replacements, replenishments, adjustments or repairs or inspection shall be made upon any car after the same shall have been registered at any night stop of the tour and before it shall have been registered out on the next succeeding morning. This was doubtless aimed at those who worked over their cars all night in last year's event in order to have them ready for the next day. Another provision that is the outgrowth of last year's experience is the prohibition against carrying any advertising signs, two of last year's entrants having been disqualified on that account. The car's adornment must be confined to its official number, carried on the side and the makers' name plate, as ordinarily affixed by the maker for private sale.

The same is true of the provision calling for a pacemaker and stating that any entrant passing the pacemaker during the day shall suffer disqualification. This, of course, is aimed at preventing a repetition of last year's "speed fest," the tour having degenerated into a free-for-all race from the very start. It adds, "If the pacemaker breaks down or is compelled to travel at a rate of speed so low as, in the opinion of the committee, to unduly impede the progress of the tour, his flag shall be transferred to the first car overtaking him, which car shall thereafter become pacemaker, subject to the same conditions."

The right to disqualify a car for overspeeding or other infraction of the rules is, of course, reserved by the committee and upon such notice, the contestant must withdraw and lose all privileges, merely going down on the record as "disqualified." But before such action shall be taken the accused must be informed of the violation and if denied, sentence suspended until a hearing has been held by the committee. If the decision be adverse, the disqualified entrant is without redress and has no claim against the association because of the disqualification or its publication or failure to publish its perforamnce up to that time.

Payment of a fee of $10 is made a condition precedent to the filing of a protest and where the latter is with regard to the entries it must be made before the start, while all protests as to unfair ruling, route, and the like, muse be made within 24 hours after the occurrence. All other protests must be made immediately after the conclusion of the tour and before the making of the award. In addition to its other powers, the committee reserves the right to alter, amend, suspend or repeal the rules in question from time to time, down to and including the end of the tour and the final award, "as may, in its judgment, be deemed expedient." Rules 9, 10, 15, 16 and 18 of the schedule, which embody the stricter regulations of the Glidden tour proper, do not apply to contestants in the "main tour" the regulations for which are more lenient.

'Bus Lines Formed and Forming.

According to the Frankfurt Gazette, a regular motor car service has been established between Enzeli, on the Caspian Sea, and Teheran, the capital of Persia, along a highway constructed by Russian engineers.

Au automobile company with George W. Harrison and J. W. Townsend at the head will be formed at Petersburg, Va. The company will operate a line of sightseeing cars to visit the battlefields and other places of historical interest.

The Wisconsin Auto Transit Co., which will operate an automobile line from Manitowoc to Kewaunee, Wis., plans to extend the service to Algoma also, running two cars a day from that city to Kewaunee to connect with Manitowoc. The company will inaugurate the service next month. William Seiker, a Milwaukeean, with Charles Scheutz, of Manitowoc, will manage the line.

William Martin, a hotel proprietor of Glenwood, Cal., does not intend to allow the stoppage of the narrow gauge train service from San Jose interfere with business during the coming season. It will take a long time to repair the discommissioned tunnels, so Martin has purchased a twelve-passenger automobile in which he will transport passengers daily from Santa Cruz to Glenwood.

The Dewhurst Interurban Automobile Co., and the Interurban Motor Traction Co., of Lexington, Ky., have consolidated, under the management of Thomas Dewhurst. The company will operate passenger and freight automobile lines from Lexington to Nicholasville, from Lexington to North Middletown to Richmond. The company soon will be incorporated for $50,000, every share having been subscribed for by Lexington people.

How Egypt is "Looking up."

Motor traction from the commercial standpoint has for some time maintained a firm hold in Egypt. Within a couple of months, this has been considerably strengthened by the granting of the Khedivial sanction to three companies which propose motor 'bus and freight transport on a large scale in Cairo and Alexandria. In connection with the interest which has been aroused by this movement, a suggestion has appeared in the local press advocating the revival of the old Cairo-Suez road. Last year's imports into Egypt amounted to something like $150,000, almost three-quarters of which stands to the credit of the French branch of the industry.

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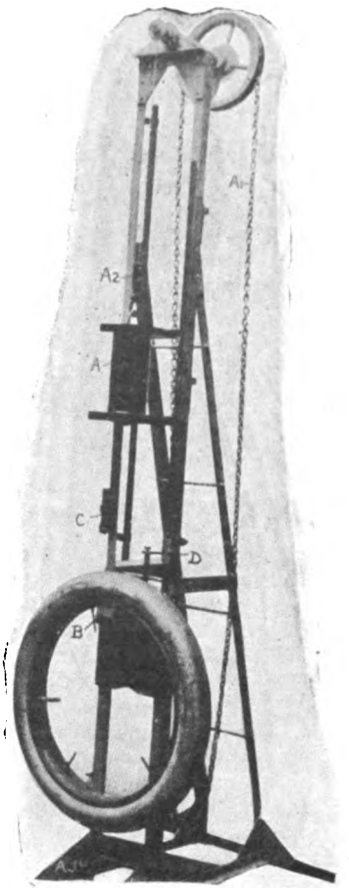
HOW TIRES WERE TESTED

Machine Built for the Purpose and Used in Recent British Trials.

In connection with the entire field of motor propulsion, it is safe to say that there is no question of greater interest alike to the builder, the dealer and the user than that of tires. And, however much the present day results may seem to have solved its difficulties, the fact remains that it will bear a deal of further study along technical and practical lines. Formerly, all such work was relegated entirely to the maker, and the results which he obtained, working as he must, with a very limited empirical knowledge of the subject, were taken as measures of his success or failure. Now, however, the motoring public is becoming more deeply interested in matters pertaining to the operation and welfare of the motor vehicle in all its phases, and is coming to an understanding of the underlying principles which outruns even that of the maker of a few years ago, and fits it for an appreciation of the true merits of any design which is put upon the road.

In this popular advancement, no factor has been more deeply concerned than the constantly increasing one of club life. This, from a mere sporting contingent, is growing to have an overwhelming influence on the market, especially in matters relating to design. Most strongly is it felt in the serious tests which are being held from time to time, growing out of the merest speed competition, and culminating in thouough-going and scientific experiments. Not simply are the road tests growing in importance in this way, but as well, the laboratory tests which are commencing to display a certain vogue, and these are fast outstripping the others in value to the art, and threatening to display a great measure of control upon technical production. Of course, in this tendency, the tire problem has received its share of attention with the others, and indeed, owing to its vitality, it has taken precedence over some of them.

Thus, the Automobile Club of Great Britain and Ireland, in connection with the recent speedometer and tire trials which it promoted, found it necessary to install a set of special machinery for the conduct of certain preliminary calibrations and specific tests. That which was employed in testing the tires, as here illustrated, consisted of a variation of the principle of the impact machine, equipped with a vertical ram, and intended to determine the resistant quality of the tire under test, and also the degree of rebound to which it lent itself. The vertical frame, like that of a miniature pile-driver, was 9 or 10 feet in height and rigidly braced to prevent distortion. The tire was held on a suitable bracket B, projecting from the frame sufficiently to bring the tread portion directly under the ram A, which could be raised by a winch and tackle at the rear, and tripped by a trigger catch A2. Two moveable pointers were caused to move by the action of the ram, one upward and the other downward. In this way, the falling of the ram brought down the pointer C, which thereby was made to record the lowest point to which it fell, while upon its rebound, it carried with it the pointer D, to its uppermost point of



travel, thus recording the amount of rebound.

The ram itself weighed 40 pounds, and this, being made to strike a blow of known intensity upon a tire inflated to a predetermined extent, formed a basis for close comparison of types which materially aided the practical results determined upon the road. Such a test as is possible upon a machine of this description, is by no means proof positive of the good or bad quality of any particular specimen under examination, but when taken in conjunction with other and more complete trials, adds very materially to the information derivable, and to the finality and accuracy of the data obtained.

In rewiring a car it should be borne in mind that the resistance of a conductor varies directly with its length and inversely with its diameter. Hence, the least possible amount of wire should be used, and at the same time, that of the greatest diameter consistent with convenience in making connections.

HOW ACCIDENTS HAPPEN

Failure of the Steering Gear and the Moral to which it Points.

One of the many instances that illustrate the necessity of keeping track of the condition of the steering gear at all times is to be found in a peculiar accident which might have resulted disastrously had not fortune decreed otherwise. The car was being driven along a country road at a comparatively slow pace which was reduced still further in order to permit of turning out to avoid a rough, stony stretch. After having proceeded for some distance on the grass at the side of the road the driver swung the wheel around to the left intending to regain the center of the road, but this had no effect whatever on the car's direction which swerved to the right more and more until it brought up against a tree and ended by capsizing, though no one was hurt. The cause of the accident was apparent at a glance for it revealed that the rod connecting the steering pillar to the cross rod linking the steering knuckles of the wheels, was gone altogether. But just what had caused it to drop off was not so plain. It was picked up about thirty feet back, where the car had first failed to respond to the wheel. Examination showed that a stripped thread was responsible for the trouble. The brass cap forming the connection at the point referred to had come off, allowing the rod to drop. The forward motion of the car caused it to dig into the ground and snap off at the ball joint close to the worm gear. Threads do not strip in a few hours running; such trouble is of gradual growth and only an utter lack of inspection or carelessness in replacing a cap or nut that was worn would bring it about. But it takes more than a good look at the various parts of the gear or feeling them with the hand to discover such defects. Trying them with a wrench is the only certain method.

Neglect of the Filter.

One of the most useful fittings in the fuel line of the car is the combined filter and trap which is located between the carburetter and tank, frequently, it is sad to relate, in a well night inaccessible place. The intent of this device is to remove from the gasolene any entrained or accumulated water which may be present, and if it performs its duty properly, it may be supposed to become filled in process of time. Yet, strange to say, it seldom occurs to the motorist to drain it off, unless something has gone wrong. If it did, perhaps the wrong would prove to be self-righting.

Although it is sometimes convenient, the motorist of experience will beware of stowing oil cans and inner tubes in the same tool box. It is something like putting eggs and potatoes in the same basket.

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LAYS DUST, SAVES ROADS.

Statistics Showing the Great Advantages of Tarring—How it is Applied.

It is now four years since the first trials of road-tarring in Monaco and Paris were begun. At first these were regarded with some misgivings by tar and asphalt workers, and more particularly by road engineers, who doubted whether a thin layer of tar could resist the month-long wear and tear of heavy traffic. After four years' observation of many miles of tarred road, the French engineers are entirely favorable to it.

During 1903, M Heude, chief engineer of the Seine and Marine Department, tarred about 24,000 square yards; more than 47,840 square yards in 1904, and some 143,500 square yards in 1905. The results have been excellent—dust arising from the wearing away of the road has almost disappeared; the increased life of the road and the diminution in maintenance charges more than repay the expense of tarring. Where formerly large sums were spent in watering and sweeping the roads, there is an annual net gain of one cent per square yard. France has experimented wisely and well. The question of tarring roads no longer is one of experiment; it is a practical preventative of dust in summer and mud in winter. As tribute to the success of tarred roads it may be remarked that all the newly made roads in France are now being treated with this preparation.

"The best proof of the advantage of the new method, as well from a hygienic point of view as from the very much pleasanter traffic conditions, lies in the fact that the inhabitants of our communes demand the tarring, and are quite willing to take their share in the increased initial expense," says M. Sigault, one of the eminent French road engineers, who has done much toward furthering the interests of good roads in his country. "The method has, therefore, been rapidly adopted. In 1903 only three road surveyors adopted it; in 1905 eight have employed tar. The following striking experiment is cited: A road 1,100 metres long, with heavy traffic, was remade in 1902; of this length 500 metres were tarred in 1903, 1904 and 1905. At the end of 1905 the tarred portion was in good repair; the other 600 metres, which had not been tarred had to be remacadamized in the course of 1905. Another experiment: Two identical stretches of road, each of 1,100 square metres surface, were remade in 1902; one was tarred in 1903, the other not. In the course of the following winter the untarred road had to be scraped nine times, the tarred portion only once; 24 cubic metres of mud were taken from the untarred portion, only 2 cubic metres from the tarred road, and that in great part had been carried on to it from the adjoining roads and fields. With a view to this saving in upkeep, the tarring has been done on these roads where the traffic is heaviest."

M. Vasseur, another French engineer, treated about 60,000 square yards of street near the Parc Monceau in Paris, with tar, and the results have far exceeded expectations. For the first time there have been no complaints about insufficient watering of the streets and the householders are once more able to keep windows open all day long.

That tarring is an excellent and practical means of dust suppression, is also vouched for by M. Arnaud, engineer of the Department of the Seine. He says that streets around Paris which formerly had to be remade every three or four years were tarred in the summers of 1903, 1904 and 1905, and look to-day in as good repair as if they had been newly remade. The postponing for one year of the remacadamizing compensates richly the expense of the three tarrings. It is important, however, to do the work quickly and well, and for this the proper apparatus must be used.

From the official reports it will be seen that tarring must not be considered merely as a dust binding material, like "Westrumite," "Rapidite," and other mineral oils soluble in water, the application of which is costly and the effect unfortunately lasts only a few weeks; on the contrary, tarring is a specially suitable means of hardening the surface of the road on which it forms a sort of "tar-asphalt." A macadamized road, to have any lasting effect in fine weather or in wind, must either be watered so heavily that mud is formed, or it must lightly sprinkled with water almost hourly where the traffic is exceptionally heavy, a procedure as costly as it is disturbing to traffic. It is sufficient with tarred roads, state those who have experimented with this substance successfully, if they are watered once a day. No mud is formed after the rain, and the water-tight surface looks exactly like asphalt. The tarred surface lasts from eight to ten months, asphalt lasts from eight to ten years, the latter costs, however, approximately, three dollars per square metre, the former only eight cents, and this eight cents is regained on the diminished upkeep cost. The financial aspect of the question had appealed to many engineers and officials who remained deaf to all appeals made on hygienic grounds.

Almost for the same reason the matter has been taken up commercially. The former primitive heating boilers and laying machines, requiring several workmen to lay the tar at a temperature of about 70 degrees, have been replaced by large boilers holding 1,000 kilos and heated in twenty minutes to 100 degrees by steam, and the tar pumped thence into the laying machine, which spreads it automatically. In this way about 12,000 square yards can be laid in four hours. The chief requisites to successful work are bright warm weather, a good road, well swept and dry. After being laid the tar should stand for twenty-four hours undisturbed. The tar boiler made under J. Lassailly's patent, and preparing 2,400 kilos per hour, is a good example of the improved machinery now available for the work. The tar boiler is composed of three principal parts—a vertical steam generator placed in front; a cylindrical reservoir behind communicating with the generator and serving to heat the tar by means of internal tubes; a vat placed beneath the reservoir to hold the cold tar. The tar is first delivered into the vat. This preliminary operation accomplished, the steam does the rest.

The tar-laying carriage (J Lassailly's patent) is another interesting device. It is capable of laying 2,392 square yards per hour. The machine is composed of four parts placed behind each other in the following order: The tar holder, the regulating vat, the sprinkler, a series of binding brushes. The method of working is as follows: The tar in the holder passes by a pipe into the regulating vat, where it is maintained at a constant level (indicated by a floater), which gives a uniform discharge and even spreading. The sprinkling or spreading is done by a pipe pierced with holes. The binding brushes take the hot tar and spread it automatically on the ground in a thin regular layer. These brushes can be weighted.

How a Long Distance Trap is Operated.

This season's development of the police trap has thus far resulted in a method which in nicety of intent certainly puts to shame anything of the sort yet to be conceived. This newest "stunt," as practiced by the Cheshire police in catching the British offender, consists in stationing an officer at each of a couple of mile posts on the same road, maybe one mile, maybe ten miles apart with a standard timepiece, and a tabulated card. Upon the latter each jots down down the number and time of passage of every car which goes by, marking its direction at the same time. At regular intervals, a patrolman mounted on a bicycle visits each post and collects the cards, which are then compared and the time taken by each driver in passing over the guarded stretch figured out from the data in hand. From these results, summonses are prepared which in due season are presented to the respective offenders, who thus are timed without their knowledge and without possible recourse to the usual complaint of the inaccuracy of the method of clocking.

Paris Adopts New Regulations.

Among the new police regulations in Paris is one penalizing the use of lamps which project a "blinding" light from the front of the car, another which forbids the use of machines which make a noise calculated to frighten a nervous horse; and still a third, which provides against the abusive employment of horns.

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The Effects of a Bad Cigar.

"A rich man, the owner of many automobiles, was taken ill, and for a long time the nature of the malady baffled the skill of his physicians, although many eminent in the profession were called in consultation," remarked the press agent, as he took a long draw from a cigar the agent had given him. "The most alarming symptom, and at the same time, a most unusual one, was a large swelling at the base of the frontal bone, just below the nose. As a last resort, in order to save the patient's life, the extremely rare and difficult operation of frontalitis digintoem was decided upon. An incision was made in the cranium and a quart of liquid of peculiar odor was abstracted. A salesman from a nearby automobile showroom happening to be present at the operation and, detecting in the odor of the strange liquid a strong semblance to gasolene, suggested that, as the rich man's car was standing at the door, the fluid be poured into the gasolene tank, which happened to be empty, as the supply had run out just as the car reached the house. This was done, and, strange as it may seem, the machine was not only 'started from the seat,' but was run from this city to a point two miles south of Boston without a stop.

"The patient's ailment has since been diagnosed as 'gasolinitis conjestibus,' a malady likely to afflict one who has much to do with automobiles and inhales exhaust gases to any considerable extent."

Applied Horse Law to Automobile.

Leaving a horse unattended is a crime on "the other side" for the animal may "stray on the highway to the common danger." Applying a similar mode of reasoning to the automobile, an English bobby had the owner of a car summoned for the same offense. The defendant, however, proved that the vehicle was locked and could neither shy, start, jib, stray nor run away of its own volition and the court decided to give him the benefit of the doubt.

New York Coroners Want Cars.

Who will be next in order of New York's city officials to be given motor cars for their own especial use, seems to be a question which is troubling more departments than one. The latest report has it that the coroners are preparing to move on the Board of Estimate in a body demanding a consignment of not more than twelve motor vehicles for the use of their workers.

How a Biter was Bitten.

Although not up to the standard of rural constabulary etiquette, a party of New York automobilists played a rather amusing joke, nevertheless, on a Pennsylvania constable the other day. The tourists were at Delaware Water Gap for the day and had neglected the formality of procuring a Pennsylvania State license.

Constable Ozenbaugh detected the oversight and arrested the motorists on the technical charge of violating the State automobile law. The latter took their arrest good naturedly and invited the officer to a seat on the machine and accompany them to a hotel to adjust matters. They cajoled the officer with good stories while the chauffeur made the car "hike" for the boundary line. Through Slateford and Portland the machine went carrying a laughing party and finally over the toll bridge into New Jersey. There they deposited a discomfited officer of the law and informed him that it probably would take longer to reach the Gap by "shank's mare" than it had to come by automobile, but they bid him not to become disheartened as he probably would reach there 'ere the supper dishes were cleared away. Whether or not the officer will bring suit against the motorists on a kidnapping charge is not stated.

What he was Waiting for.

The words "chiffonier" and "chauffeur" are somewhat alike when written, though in conversation there is sufficient difference in the pronunciation to distinguish very readily. The other day the following dialogue occurred in front of the Automobile Club of America, in which the words were used, though one of the parties to the conversation thought for awhile that his friend did not know any better:

"What are you waiting for, old man?"

"Waiting for my chiffonier. We are going driving in my car."

"Oh, no; you mean you are waiting for your chauffeur—the man that drives your car."

"No, I'm waiting for my chiffonier," stubbornly replied the man.

"I beg your pardon," replied the other. "A chiffonier is a swell dresser, and a chauffeur is one who drives your car."

"That's all right," retorted the one who knew, as a pretty woman, handsomely dressed, came down the stairway and got in the machine, "I'm waiting for a 'chiffonier,' all right."

This Happened in "Gay Paree."

A recent demonstration of automobile aggressiveness which quite eclipses anything hitherto related, occurred in Paris, when a car was driven violently through the Avenue de Versailles, regardless of the convenience and safety of other traffic, and one of the occupants, standing in the tonneau, caught a passing cabman by the neck and threw him to the ground. Later, a market gardener was similarly caught and tilted over into the midst of his vegetables.

Addition to the Vernacular.

"Throw in your reverse," constitutes the most recent addition to the motoring vernacular. Its significance is too obvious for comment, but for those who are fond of talking automobile upon little or no provocation, it is more expressive than the common, everyday "backup" when applied to the teller of tall tales.

What Most Concerned Him.

As guideboards the Scriptural passages and dire warnings that have been painted into the landscape by Salvationists and others are not of much use, but occasionally one of them comes in handy to point a moral and adorn a tale. It is one that can be seen on the fences and rocks of the open country here and there. A New Yorker who ran across it recently tells the story at his own expense. He was on a tour and had his wife in the car with him. It was raining and he had lost his way. He was driving along a mean dirt road, wondering where it led to and doing his wondering with some profanity, in spite of his wife's reproof, when she suddenly cried: "See! See!" and pointed to a boulder, on which was painted "You are on the way to hell."

The tourist ceased swearing, but a few minutes later he shocked a native whom he met driving a farm wagon by calling out: "Hey! A sign back there says this is the road to hell. Can you tell me how far it is from here and if we can get a meal there?"

Montreal Must Refund License Money.

A curious discovery has been made by the city authorities of Montreal. It is a fact that under the law the city has no right to levy a license charge for automobiles, but the officials did not discover it until the other day. The last session of the Provincial Legislature passed a law which abrogated the right to license automobiles but no publicity was given to the fact and the motorists, and even the officials, did not know of the existence of the new law. Now it appears that upwards of one hundred licenses have been issued to motorists and as a consequence of the late discovery the fees will have to be returned.

Wanted Cars to Carry Sprinklers.

At a recent meeting of a rural council, it is needless to add, an English one, a discussion took place on the dust nuisance caused, it was alleged, by automobiles. One member very seriously and strongly urged that the government should be called upon to compel motorists to provide water carts in front of their cars and to push them along. It is not stated whether this bucolic legislator is a member of the temperance organization which advocates rides upon the so-called "water-wagon."

Pittsburg's White White Ambulance.

Coroner Joseph G. Armstrong, of Pittsburg, Pa., is a gratified city official. He has secured the consent of the County Commissioners to purchase a motor ambulance and the order already has been placed with the White Sewing Machine Co., of Cleveland, Ohio. Instead of the prevailing ambulance black, the new machine will be painted a creamy white, which will be suggestive of life, not death, to the luckless person who may chance to be an occupant.

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"GENERAL OVERHAULING"

What it may or may not Mean and the Situations that Arise.

Just what is meant by the term "general overhauling" is something that cannot be accurately defined by reference to the dictionary or any other authority for that matter—even if the garageman himself cannot elucidate it satisfactorily if a persistent attempt be made to pin him down to actualities.

"We'll look her over thoroughly," and "We'll see that she's in perfect running order before she leaves the shop" are two of the specimens most frequently met with, and the latter when analyzed throws a flood of light on the subject. With a diabolical perverseness that is seemingly an inherent trait of all inaminate things a car that has been cutting up ructions of all kinds when several miles away from a repair shop will become docile as a lamb and perform as if life were all one sweet song, the moment the garage heaves in sight. At much pains the owner explains the many and varied ills to which the motor has been subject during the last half hour while the knight of the spanner listens and looks on in patience. The tale of woe having reached its conclusion, he calmly inspects the coil tremblers, the timer, the ignition leads, tests the battery and takes a surreptitious look into the gasolene tank, tickles the carburetter lovingly and—all in that leisurely fashion that distinguishes the son of toil who knows he is being paid by the hour.

The net result is nothing wrong—if he chance to be uncertain of the thoroughness of his first inspection, or if he be of the ultra careful kind, who think two short looks at different times are better than one of the concentrated kind, he will repeat the process. This failing to reveal anything out of the way—as it usually does, he will then get at the crank. The motor may have stalled half a dozen times in the last five miles, involving a session at the crank on each occasion, but now it starts off beautifully on the first turn over compression. The owner and his companions regard one another with amazement, while sundry looks of suspicion are cast at the "know it all" member of the party who has been in charge of the mechanical end of the expedition. If he be discreet—and it is a trait soon acquired in the business of repairing cars—the garageman says nothing or merely permits the shadow of a smile to hover about his features momentarily. In the same leisurely manner, he drops the crank and proceeds to try the effect of the spark and throttle. Needless to add, both work beautifully. But an engine will frequently run idle in good shape and absolutely refuse to perform when the load is applied, so he mounts the driver's seat, takes the mechanical man of the party as an escort, and a trip is made around the block. Nothing whatever disturbs the serenity of the ride and upon its completion the party piles in and is off again, after having settled the cost of the looking over.

Half a mile, a mile and still the car runs well; suspicion of a return of the malady once out of reach of the garage has not left the owner's mind as yet, but another two miles seem to settle all doubts. The mechanical man gives up the task of trying to explain what might be the matter but is not, and the others quit shaking their heads in wonderment, putting a quietus on the subject by repeating the oft told tale about the gasolene's engine numerous and inexplicable vagaries. Then when all is serene and there is nothing but the passing scenery to admire—when the dust clouds permit it, there is a wheezing and choking noise, or the car jerks ahead spasmodically for a few yards to the accompaniment of a clanking sound, and—the symptoms may be multiplied indefinitely, but no matter how varied or numerous, their finale is a halt by the wayside. All descend once more and the wise ones immediately get busy; they do not find anything wrong, but as the inspection is always accompanied by a try at the crank the process comes to an end with the restarting of the engine.

Then there ensues an expert supervision and consultation—the motor is tried at every speed from its slowest until it threatens to run itself off the frame; with the throttle open and with it closed, half open, quarter open and every other way combined with notching the spark lever up and down its whole range. But the motor responds to every change exactly as it should, exhibits no symptoms of cold in the head, weak firing, loss of power or any other malady and after a little more head shaking the party remounts and rides off, probably to repeat the experience once more, or, if the fates be so unkind, several times before reaching home, and stopping so often makes the arrival a late one with all concerned out of patience.

In thinking matters over subsequently, the owner decides that the motor has not been running quite as well as it should have previous to the day of ill luck and finally comes to the conclusion that the car needs a thorough overhauling. "Hasn't been in the shop for a long while, so it's a good time to do it up from top to bottom." The car is turned over to the repair force of the garage with instructions to give it a thorough overhauling. If the directions be no more explicit than his it is ten chances to one that the car will receive a good inspection and nothing of any moment will be found the matter with it, a testing trip of an hour or so on the road will follow and the car will be ticketed as O. K. and again ready for its owner. The latter is usually curious to know what the trouble was, but finds it difficult to obtain any satisfaction on the subject. He may run the car again for a day or a week without finding any fault or he may find it is necessary to run her back to the shop the same day he took her out and his frame of mind will beggar description.

The next overlooking may bring the trouble to light or it may not—at any rate, the owner is deprived of the use of his car; the repairman is utterly non-committal as to the cause of the defection or if pressed unduly merely indulges in vague surmises, and the owner begins to feel that automobiling is not altogether as pleasurable a pastime as it might be. The reason is to be found in the garageman's lack of inclination to do any more work on the car than is called for. Not because he does not want to do it—chiefly because the owner has not ordered it in the majority of cases, and a "general overhauling" to his mind does not mean anything more than bringing the car to a state where it will run satisfactorily for the time necessary to give it a trying out. His disinclination to tear things down is further fostered by the fact that it swells the repair bill unduly and unless there be an understanding on the subject, many owners are apt to think they are being gulled for needless attention to the car. The garageman has scarcely a shred of reputation left to lose on the score of overcharging, in fact, he is not infrequently accused of creating work for himself and in some cases the charges would appear to substantiate the accusation. At least they furnish strong evidence of such a srime.

Bearing this in mind, the proprietor of the reputable garage finds it necessary to protect himself. In the case of a car that has been run for a season without having been in the shop for any length of time during that period, a thorough overhauling means taking down the engine, laying bare the transmission right from the clutch to the rear axle, taking down the latter and the differential, looking over and replacing water connections, wiring—in short, making the car ready for a full season's work. But such an undertaking means the time of a skilled mechanic and a helper for a week or more—sometimes considerably more, depending upon the amount of replacement necessary. What the latter will consist of will naturally vary with every car that comes into the shop. Even though it has seen a season's work of the very hardest kind, a little taking up may constitute all the bearings need; in other cases nothing short of new bearings will suffice. A wrist pin may have become so loose that it has worked out at the side and scraped against the cylinder wall scoring it so deeply that reboring or a new cylinder may be necessary. Constant running with insufficient lubricating oil may have contributed to the same end, in short, there is no telling what damage laying bare the insides of the motor may reveal. It is nothing unusual for the garageman to call a halt in the process in order that the owner may see the condition of the parts himself and state whether he is willing to have them

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replaced or not. All this is involved in the term "thorough overhauling" and having passed through it a car should emerge practically as fit as the day it came from the factory with the added advantage of having its parts well run in.

And that is why the garageman confines himself to an inspection of the car's working accessories such as the carburetter and ignition systems when the car is brought in and left for a "good overhauling." The average owner has but faint conception of half the latter implies where it is to be taken literally and in not a few instances the repairman would find it difficult to collect his bill after having expended such an amount of work on the car. For this reason he only does what he is told and in some garages the practice is carried on to an extent not sanctioned by every-day common sense, for obvious defects will be permitted to go unheeded simply because the owner has not ordered them made good. He may not have been aware of them himself, but that does not matter.

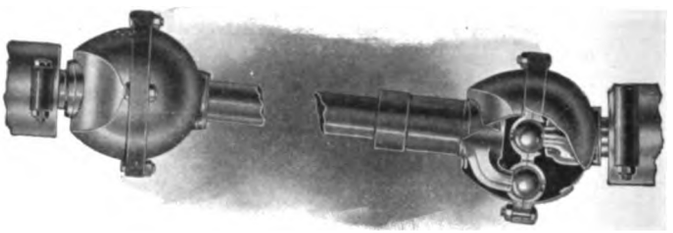
The question of satisfactory service at a reasonable cost is naturally paramount, so that where the matter of repairs is concerned it is a wise policy to confine attention to the owner's orders in this respect. The car may need a great deal more in the way of overhauling than its driver realizes but putting things right without authority has so often resulted in disagreements that the garageman's attitude is the outgrowth of experience. Fifteen minutes frequently suffice to discover the cause of trouble that has been undiscoverable to the owner of the car for days. He has finally brought it to the shop in disgust and wants it "thoroughly overhauled." If he can come for it next day and find it running satisfactorily the term is fulfilled so far as he is concerned, though the overhauling may have been confined to draining the dirt of the carburetter, cleaning the timer or something equally trivial. At the same time, there may have been considerable in the way of repairs that might have been done; it would not have made the car run any better at the moment but represented one of those stitches in time that often save so much trouble later on. The owner either is not aware of it or is indifferent; if the particular repairman who discovers it reports the defect the head of the establishment may discreetly suggest the need of repair or not, and in either case everyone is satisfied.

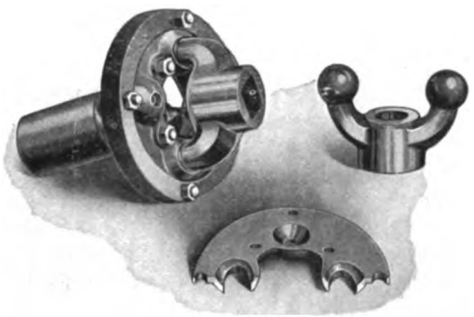
Borrowing Parts from the Car.

Although the practice of "robbing Peter to pay Paul" is admittedly a wasteful one, there are times when the motorist on the road is forced to apply it or walk. In such a case, it not infrequently happens, that a nut or a bolt taken from some part of the mechanism where it serves a comparatively unimportant purpose may be made to substitute for another which has gone bad. The practice must be applied with discretion, however, or serious results will follow.

New Features of a New Joint.

Like many another movement which, until its application to the automobile, had been alowed to remain in comparatively inefficient form, the universal joint, during the comparatively brief interval since its introduction to the field of motor engineering, has undergone considerable improvement tending to decrease its friction losses and increase its driving strength and flexibility. But the end is not yet, and still newer forms are constantly coming to light. One of the newest of the new is the "Hartford" Universal Joint, which the Hartford Automobile Parts Co., of Hartford, Conn., has just placed upon the market. This joint, which is applicable to all types of shaft driven car, combines an old and well known principle in a novel manner, and is well calculated to resist any sudden increase in friction through overload or the deformation of its parts owing to an undue rate of acceleration.





As will be aparent from the illustration, the joint has no center block or spider, but consists of double arm driving yokes with ball ends, which fit into sockets in an annular ring. This socket ring is made in halves of each pair of half sockets is slotted sufficiently to admit the neck of the balls, and allow an angular motion of the yokes of fifteen degrees either side of the normal. It requires four half rings identical in construction for each complete point either pair of halves being of necessity assembled with the breaks at right angles, so that when bolted together the four parts become a rigid ring. As a reinforcement and to hold in place the pressed steel enclosing casings, an outside steel flanged ring is fitted. The casing is all metal and consists of two semi-cylindrical covers, closely shaped over caps fitted to the driving hubs, the joint being made grease tight by means of felt packing.

Besides the well established fact that a spherical bearing will work under a greater pressure per unit of area with less friction and less danger of cutting than a cylindrical bearing, it is evidently impossible for the with the load. Many types of joints of light construction, the bearings of which are in perfect static alignment, show an appreciable loss of power when subjected to load. In the "Hartford" Joint, no such cramping effect is possible, it being evident that free motion would not be interfered with, even if shock or overload were sufficient to bend the driving arms somewhat. It is also claimed that the construction gives great strength by carrying the weakest point of the system for out from the center, thus decreasing the breaking strain.

All parts are of steel and are interchangeably machined. The driving yokes are forged from carbon or nickel steel according to specification, the ball ends being case-hardened. The socket rings are drop forged from tool steel and spring tempered, the combination of metals resulting in a bearing of very high quality and one which experience has shown will not cut even when lubrication is insufficient. An annular groove is cut in each spherical socket, however, with large channels connecting to the grease chambers, thus allowing the rapid revolution of the joint to force the grease directly on the friction surfaces of the balls, thus insuring perfect lubrication.

Lubrication that Causes Trouble.

A bit of very useful advice which is universally given to owners of new cars, is to employ plenty of lubricating oil, sparing not a single bearing or part where oil can be introduced. This is all well and good, but almost invariably results in the flooding of the crank case sooner or later, with the effect of causing a deal of misfiring. If the owner be a novice, this generally provokes him to a campaign of tinkering in which no adjustment is left intact. As a general thing, however, all that is required is to draw off all the used oil from the engine base and substitute a rational amount of fresh material. Then, after cleaning the ignition points, all will be right.

Water for Cooling Purposes.

The kind of water used in the cooling system is a matter of greater importance than is apparent at first sight. There is always more or less evaporation going on and if the engine happens to run hot the water boils more or less actively. If it be of a mineral nature there will be a considerable deposit in the radiator and the other metal parts of the system at the end of a season's running. If it be available it is advisable to use rainwater for this purpose.

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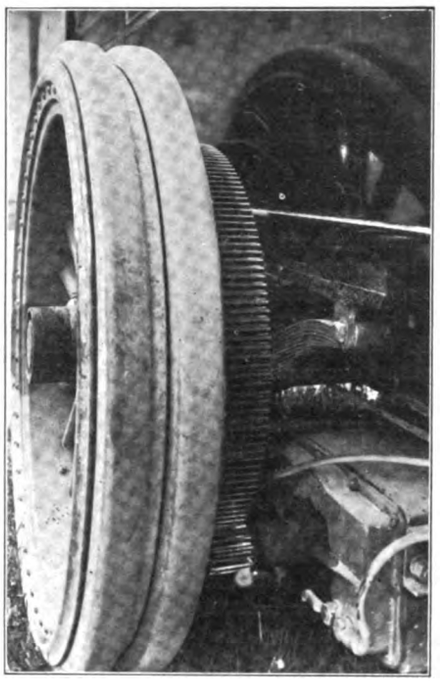
TWELVE TONS ON TWINS

Remarkable Achievement in Rubber Working—Problems Solved by Double Tires.

Commercial vehicle requirements have brought with them more than one problem to be solved by the designer of this type of automobile and none has proved more pressing as weights have ascended than that of tire equipment. Solid tires first gained popularity on the bicycle, but with the advent of the pneumatic they fell into the background almost totally for a number of years. Then the bicycle gear or low wheeled buggy and runabout came into style and once more popularized the solid tire. Soon they were numbered by thousands but for a long time it was unusual to see anything over one inch in diameter—scarcely larger than some of those of the early days of the bicycle. Five years ago a solid tire three inches in diameter was considered a somewhat ponderous affair.

But things have moved since then and nothing has grown so alarmingly as weights. Unless found in the shape of single pieces of stone or iron or in such a shape as not to be divisible, horse hauled loads have seldom exceeded five tons, and for anything above this, four, six and eight animals have been employed. Within a year or two the loads carried by commercial gasolene and electric vehicles have risen to ten tons and with this increase the matter of adequate tire equipment has been one calling for no little study. When four and finally five inch solid tires were evolved it was naturally considered an achievement and although they were not then aware of it, those who were responsible for these tires had reached a practical limit. Six, seven and eight inch solid tires have been manufactured and mounted on vehicles, but have not served well. This was the case particularly in an instance in which eight inch tires were used—the ponderous gasolene-electric vehicle run experimentally on Fifth avenue in New York City. One of rubber's chief attributes is incompressibility—the yielding of the solid rubber tire is not due so much to compression as it is to elasticity—the material is forced out at either side and it has been found that where the tire is made so wide that the amount which can be squeezed out at either side is very small in comparison with the size of the tire, the remainder is simply ground up beneath the weight of the vehicle and the driving effort of the wheels themselves.

The eight inch tire proved to be such a poor investment that it was soon discarded. Figuring by analogy, there being no precedent available as a guide, it was calculated that a tire of this width was necessary to obtain the necessary tractive effort and bear the load and as steel was entirely out of the question, it was simply a matter of applying the rubber in some other form. In the case of the ponderous portable charging station built by the New York Transportation Company for recharging their electric vehicles at points distant from the city, this has been done by the use of Turner four inch "twins." As shown by the accompanying illustrations they are practically independent tires and though mounted on the same rim in the same manner are held apart in order to increase the spreading effect of the rubber which was found to be lacking when the eight inches of rubber was integral. The vehicle in



question totals a weight of close to twelve tons, so that the driving gear and wheel equipment were of necessity made of correspondingly large proportions. The felly of the driving wheels, one of which is shown in the photograph, together with its gearing with the motor, measures almost ten inches across the face. The two four-inch tires are separated by an endless steel ring of one-inch section and they are held in substantial channels.

With such a weight as this skidding becomes extremely dangerous and liability to slip and slide from the crown of the road to the gutter whenever the pavement became a bit wet, was one of the chief arguments against the eight-inch tire in one piece. Making the tire in two sections, as illustrated, as well as separating them, has been demonstrated to form as effective a protection against side-slipping as it is possible to obtain under such conditions and with smooth surfaced tires.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. * *

WHEN THE MOTOR MISSES

Some of the Likely Sources of the Trouble—How System Tells.

There are few things more annoying than to have a motor that is "subject to spells.' It will perform smoothly and without hitch for more or less extended periods and then with no apparent provocation whatever will become erratic. One or more cylinders will miss or the missing will travel back and forth from one to another and no amount of searching seems sufficient to uncover any good cause for the defection. The fact that the motor will at all times restart beautifully after a lengthy session of tampering that really accomplished nothing, makes it all the more puzzling. So many things have been examined and not found wanting that one is at a loss to recall just which one of them might have contributed to the result. As likely as not the motor will resume its spitting and missing within the next half hour or so and then it is easy to decide that the aimless tampering had no effect, good or otherwise.

Any one of such a number of apparently slight defects may be responsible for the default that it is frequently difficult to know where to begin to look for the trouble and doubly so to advise offhand where it is most likely to be found. It is probably on this account that garage repairmen have developed into such a taciturn lot of individuals who listen impassively to the owner's tale of having tested everything under the sun and found it alright, and when it is concluded, start in their own sweet way to hunt the trouble.

If the motorist who finds himself in a similar predicament can do likewise and forget all that he has done before it will doubtless be easier for him to solve the riddle as in all probability the fault may lie in the very thing that he has been certain from the first is in good order and has not bothered to test it. Go over the whole engine systematically, beginning with the ignition; try the commutator and give it more than a glance. See that it actually makes contact for every cylinder and that the time of contact is sufficient; that the vibrator points are in good condition and that the coil itself has not suffered. Try the valve springs and the valves themselves; see that the clearance is sufficient between the tappets and valve stems; note whether the inlet manifold leaks at any of the connections to the cylinders. These are not all by any means; the list is such a lengthy one that to recapitulate it in detail would be as wearisome to the reader as it is to the man who has to pore over it and try its items one at a time in what appears to be a fruitless search. But system will always tell as aimless tinkering invariably results in one thing being tried a great many times and others not at all.

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CHOICE OF SPARK PLUGS

Advantages and Failings of Porcelain and of Mica—Experience Best Guide.

Some motors are simply death on spark plugs while others will run continuously for such a length of time without any necessity of ever looking at this essential element of the motor that it might as well be an integral part of the cylinder, there is so little occasion for disturbing it. This is the case to such an extent that there are certain makes of machines that have achieved a reputation for literally "chewing" up plugs. On such cars the driver who knows the ropes makes straight for the plug, whatever the symptoms may be, and more often than not finds what he is looking for—a badly broken porcelain. One American-made car of former days had a particularly evil name in this respect. It was the "one lung" predecessor of what is now one of the best known touring cars made on this side of the water. It was a stylish little car and although it is now two years since it ceased to exist so far as the manufacturer is concerned, there are quite a few of them still running around—apparently as good as ever they were.

The engine was of the high speed type, designed to run pretty fast and rather hot as compared with present day standards for larger multiple cylinder engines. The end of the plug stuck up in such a position that it was fully exposed to the draft made by the machine when running—clearly an ideal combination of adverse circumstances, for with its inner end almost incandescent the outer portion would be constantly cooled. The car could hardly claim silence as one of its prominent attributes and if the blow delivered on the inner end of the plug by the explosion was half as sharp and sudden as the barking of the exhaust would seem to indicate it is certainly a marvel that plugs ever lasted at all in that cylinder. They did, of course, but the day of reckoning was ever at hand and a failure to respond to the demands made upon the engine particularly in taking small inclines on the high, was a certain indication that it was time to see whether the "spares" had inadvertently been left behind or not as is only too often the case, or whether the car's only wrench which had been taken away to do some odd job around the house had been left there.

Such a combination of circumstances, when it occurs a few miles from nowhere in particular and with no alternative but to walk to the nearest settlement on the meagre chance of finding what is wanted, is more than sufficient to make the average human being forget religion and morals. And an engine that is given to breaking plugs frequently, also has a habit of holding them fast when it is desired to extract the worthless remains and make ready for a new one. Next to not having the necessary replacement comes the inability to use it; there are few things more exasperating. Benefitting by experience one comes in time to carry a miniature repair shop about in the tool kit, so numerous do the wrenches, spanners, screwdrivers and what not become. They may not be needed often but when the occasion does arise the need is pressing and the reward for having freighted them many miles is ample.

With a car that earns for itself a reputation as a "plugger," it shortly becomes a question of seeking relief and this is first looked for in the shape of new makes and grades of plugs. The fault may be attributed to cheap plugs in its early stages, but when different and higher priced ones bring no improvement the search afield becomes wider. After having investigated in most of the various patented plugs that are guaranteed to last forever and always produce a "fat, hot spark," the troubled one reaches the point to which many an experienced motorist has come before him. The question resolves itself into two simple elements—porcelain or mica? As all girls are pretty, so all plugs are good, but some are better than others. There is so little difference in spark plug construction in general that the inexperienced cannot tell one make from another, for the essential elements of every plug are the same and what is more, the great majority of them are put together in much the same manner. Consequently, if the troubled one is not given to bargain hunting and pays the regular market price for a good plug, he stands every chance of getting one. If he asks the advice of his friends he may be told to buy as many different makes as there are plugs and after listening to it all he will end up in buying the one the salesman recommends.

But soon experience will guide him and after having run the gamut of the different systems it will be merely a question of a mica or a porcelain insulated plug, the quality of both being conceded to be equal. Like everything else, both have their advantages and disadvantages. Porcelain represents the insulating medium par excellence; there is nothing "just as good" as porcelain for this purpose; nothing that will take its place under all conditions. Unfortunately it lacks that greatest of all essentials—durability. Its life is extremely uncertain, depending as already referred to on the particular habit of the motor of which it forms a part. It may last a season's running and on the other hand, a day, or even a few hours' steady running may see the end of it. On the whole, unless the engine is a "plugger" the porcelain plug renders about as satisfactory service as is obtainable—provided the tool kit always contains a generous provision of "spares."

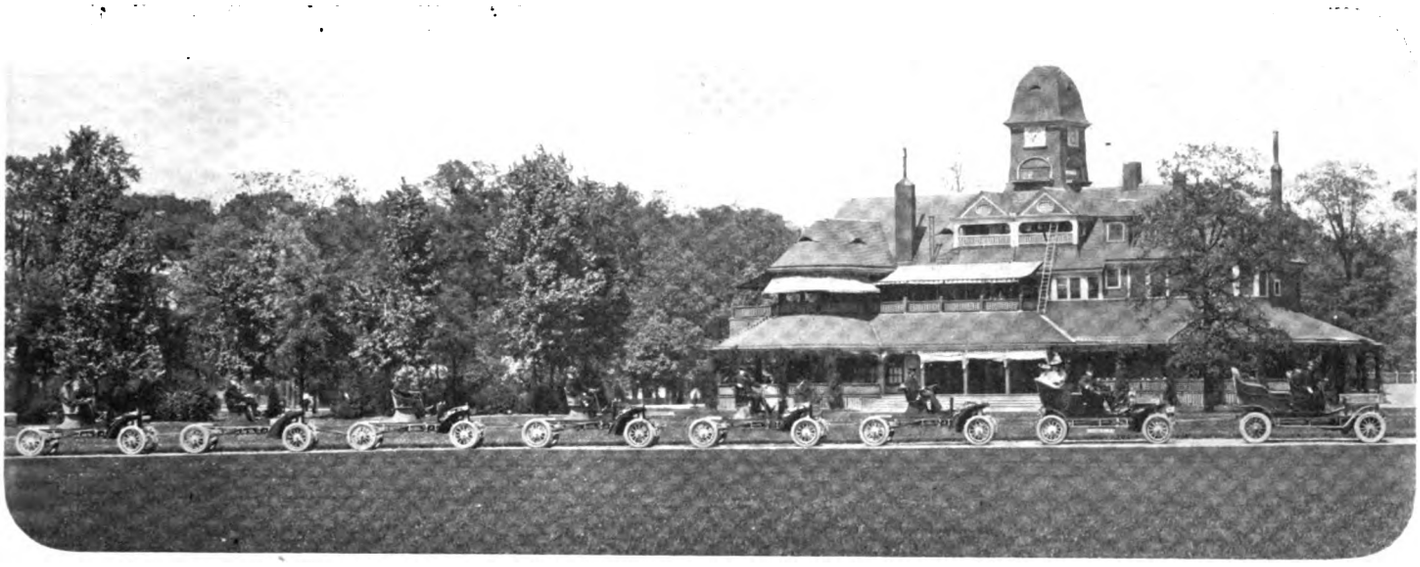
Under certain conditions, mica is as impervious to the attacks of the high tension current as its rival, porcelain, but sad to relate, its "just as good as" qualification has the inevitable string to it. As long as oil and water are kept away from it, the mica plug will serve admirably and the motorist may rest assured that he will not be held up on the road on account of a broken plug. Despite the fact that the laminations of mica are scarcely of a hair's thickness and are put together under tremendous pressure, moisture and oil will sooner or later work their way into the apparently solid and impervious rod of mica. Trouble ensues when the process has gone far enough and when it does come it is of a nature that brings the balance of advantage versus disadvantage in comparison with the porcelain type about on a level. For the trouble is short circuiting and the fact that it is hidden from either sight or sound makes it more or less puzzling to locate. Many short circuits make their presence known by the jumping of the high tension current across the gap that it is bridging instead of reaching the plug. In the dark they can sometimes be seen and in the daytime tracing them becomes easy when the gap is sufficiently large to cause the spark to make a crackling sound in bridging it.

The mica plug does neither and unless it be suspected as the cause of the defection, much time and trouble may be wasted in looking over the remainder of the ignition system to locate it. It is unfortunate that a code of rules cannot be formulated for tracing breakdowns in which each item would read: "In case of trouble"—in the ignition say—"'always' not simply 'look'—'always look' at the plugs," or, for failure of the gas "always look at the spray nozzle of the carburetter." Some writers do employ such expressions in dealing with methods of trouble hunting, but motorists who follow such directions soon learn to qualify them by other adjectives of time, for no one thing is "always" at the root of the matter. Consequently the mica plug is sometimes responsible when it is not suspected and on other occasions the contrary is the case and the one whose getting there depends on locating the fault feels aggrieved because the plug is not to blame, particularly when he has half a dozen spares with him.

It is easy to sum up the situation where the plug is concerned. The construction of this essential has hardly varied a jot since it was first invented. Improvements galore have been made, of course, but there is scarcely a single instance extant, so far as known, in which fundamental principles have been departed from. The plug end to be screwed into the cylinder forming the ground return; an insulating core and through its center a conductor ending in close proximity to some part of the body of the plug—these are its essential elements and nine-tenths of all the plugs on the market embody them substantially in the same manner. Experience may result in the creation of a preference for a certain type, but in the end it will simmer down to a matter of mica or porcelain; for a cool, easy-running engine, the latter will have the preference; where these conditions do not obtain mica becomes a necessity.

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Putting the Air Control to the Test



Testing the Northern Air Control.

During the last show season, probably nothing served to excite a greater amount of curiosity among the inspecting public than the new Northern car with its pneumatic control system, particularly in regard to the unique construction of the master clutch. This, it is to be remembered, departing entirely from the traditional formation, comprised a flexible diaphragm which could be distended by the pressure of the air control to bear frictionally against a corresponding disc, thus connecting the driving and driven elements. But, whatever may have been its success on the demonstrating stand, more than one expression of incredulity was heard, its very radical nature serving to excite a deal of skeptical comment. A recent test of one of the cars, made at the factory, serves to set at rest all such doubts, however, and gives a remarkable testimonial to the success of the method.

Taking seven like machines in tow, the test car made a run, in which an average speed of ten miles an hour was maintained, during which the working pressure in the air-line, which normally is raised to 60 pounds per square inch, was cut down to 18 pounds, yet without the least perceptible slipping between the elements. By way of further test, the air pump was disconnected, and a rubber tube attached to the clutch in such a way that the operator could blow into it. Even the slight pressure thus obtainable was found to be quite sufficient to drive the car alone.

The first test car has been driven something like 10,000 miles on the road, and up to the present time no difficulty of any description has manifested itself, not even the least amount of wear being apparent on the contact surfaces. This, coupled with the fact that the contrivance is essentially self-adjusting, a feature which is deplorably absent from all other types, augers well for the future success of the four-cylinder Northern.

To Make a Handy Spanner.

It is one of the motorist's grievances that nuts and bolts on different cars are not standardised. Every manufacturer seems to favor some particular number of threads to the inch, and certain sized nuts; consequently, when a set of box spanners is bought, the owner is lucky if he finds two or three out of eight which fit the nuts on his car. It is strange why so few have tubular box spanners made to fit the nuts on their cars; any blacksmith could do this, and they can be made to any handy length. On an inaccessible car a long one will prove quite a boon to handle, as to get at particular nuts is very trying and necessitates working between sundry rods, etc., and then the nut can only be moved about a quarter of a turn at a time. Such a tool may readily be made from a piece of weldless steel tubing of about 14 B. W. G., and the operations required may best be stated in the words of a motorist who undertook the creation of such a spanner:

"The internal diameter was as near as possible the same as the diameter of the nut, the radius of which would be from centre of nut to the flat. The tube was then heated to a blood red, and pushed on to a tapered mandril held in a vise, and the end hammered, turning the tube round meanwhile until it was expanded sufficiently to just wedge on the nut.

It was then heated again, hammered down over the nut, and then turned on its side, and a few blows given with the hammer on each of the flats, the nut, of course, remaining inside. This spanner did yeoman service, and there is no reason why every motorist should not make it a rule to have a box of spanners made to size and suitable lengths. Any handy mechanic can make box spanners in this manner from weldless steel tubing, which can be purchased from most bicycle repairers."

How Files may be Renewed.

Although the at all times useful file is an article which is sufficiently popular on the market to be obtainable at almost any time and place, and sufficiently low in first cost so that its owner can discard it without suffering any pangs of conscience, still it is well for the motorist to bear in mind the fact that contrary to the general impression, files can be resharpened after a period of use, and though not restored to their former efficiency, yet can be revived sufficiently to be of considerable further value.

The method consists in plunging them in a bath of weak acid which eats away enough metal from the entire surface exposed to sharpen the teeth to any desired extent.

The first step in the process consists in giving the tool a thorough cleaning with a file card, followed by an immersion in a hot lye solution, which is succeeded in turn, by a bath in pure water which removes all traces of the lye. Afterward, it is allowed to remain for a period of from one to ten minutes in a solution of equal parts nitric and sulphuric acid in five to six times its bulk of water. When the metal assumes a new and bright appearance, it should be removed from the solution, thoroughly rinsed and dried before being used. This process will not secure the same cutting value which is found in a new file, as the action of the acid may be sufficiently irregular to form minute wave curves in the edge of the teeth, but it will suffice for rough work, and serves to advantage when new tools are not to be had.

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The Week's Patents.

821,471. Locking Device for Screws and nuts. Charles H. Dewett and Walter J. Griffiths, London, England. Filed Sept. 9, 1905. Serial No. 277,649.

Claim.—1. In a device for holding screws anl nuts against becoming unscrewed, the combination with a member to be turned, having a hole therein at about right angles to the axis thereof, of a locking-piece comprising a shank adapted to be inserted in the hole in the said member and a bent gripping portion adapted to be forced in contact with the surface of the part to which the said member is to be screwed.

821,519. Vehicle-Wheel. George H. Mitchell, North Yarmouth, Me. Filed Jan. 21, 1905. Serial No. 242,142.

Claim.—A wheel comprising a plurality of segmental sections provided with mortises and tenons for the entire length of the segments, a hub having inner and outer integral flanges, said inner flanges being spaced apart for the reception therebetween of the inner ends of the sections.

821,546. Multiple-Cylinder Engine. Harry E. Smallbone, Chicago, Ill. Filed April 10, 1905. Serial No. 254,757.

Claim.—1. In a multi-cylinder gas-engine, the combination of bodies one rotatable with relation to the other and consisting, respectively, of a central shaft and a series of piston-cylinders around the shaft, cylinder-exhaust valves, a sleeve on the shaft controlling the gas ignition and exhaust of all the cylinders, driving means for the sleeve turning it at half the speed of the said rotating body, and governing mechanism on the sleeve movable into and out of the path of closing movement of the exhaust-valves.

821,622. Storage-Battery-Filling Apparatus. Thomas A. Edison, Llewellyn Park, N. J., assignor to Edison Storage Battery Company, West Orange, N. J., a corporation of New Jersey. Filed Nov. 2, 1904. Serial No. 231,063.

Claim.—1. In a filling apparatus, the combination of a supply-tube, a nozzle connected thereto, a pair of conductors connected to opposite poles of a source of current, one of said conductors being electrically connected with said nozzle and the other conductor being carried by said nozzle but insulated therefrom and being electrically in circuit with the liquid within the receptacle to be filled, and means for controlling the flow of liquid through said supply-tube, substantially as set forth.

821,624. Gas-Separator for Storage Batteries. Thomas A. Edison, Llewellyn, N. J., assignor to Edison Storage Battery Company, West Orange, N. J., a corporation of New Jersey. Filed Nov. 2, 1904. Serial No. 231,064.

Claim.—1. In a storage battery, the combination with a valve-casing and separating-valve, of an auxiliary valve forming a cover for the casing and normally closing the same, as and for the purposes set forth.

821,640. Cooling Device for Piston-Rods. Rudolf Hartwig, Essen-on-the-Ruhr, Germany, assignor to Fried, Krupp Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Filed May 17, 1905. Serial No. 260,842.

Claim.—1. The combination with a longitudinally-bored piston-rod, of a mantle surrounding the same and spaced therefrom, an inlet for the cooling medium at one end of the rod, and an outlet at the other end of the rod being provided with a passage connecting the bore in the rod with the mantle near the cooling-medium inlet, to provide a flow in the same direction through the rod and the mantle.

821,656. Roller-Bearing. Charles S. Lockwood, Newark, N. J., assignor to Hyatt Roller Bearing Company, Harrison, N. J., a corporation of New Jersey. Filed Nov. 30, 1904. Serial No. 234,854.

Claim.—1. In a roller-bearing, the combination with a casing and a journal having the shoulders and facing in the same direction, of the thrust-collar fitted to one of said shoulders, the abutment-rings with balls fitted to the thrust-collar, the casing having the lining and the journal having the sleeve with a set of anti-friction-rolls fitted between the same, and nuts operating respectively upon the lining and upon the sleeve, one of said nuts operating to adjust the abutment-rings in relation to the thrust-collar, the whole arranged and operated substantially as herein set forth.

821,679. Tire for Vehicle-Wheels. John Thomas, Invercargill, New Zealand. Filed April 27, 1905. Serial No. 257,710.

Claim.—1. A vehicle-tire comprising in combination a tire-rim having inwardly-curved edges, a series of transverse substantially flat springs having their lower ends hooked engaging said curved edges and extending round the whole circumference of the tire-rim, means for connecting the upper ends of each pair of transverse springs, and supports secured to the tire-rim for said springs substantially as described.

821,702. Ball-Bearing. Robert Conrad, Berlin, Germany. Filed Aug. 13, 1904. Serial No. 220,653.

Claim.—1. In a ball-bearing, a yielding lubricating device interposed between adjacent balls, said balls being free to move toward each other and to compress the lubricating device between them.

821,703. Ball-Bearing. Robert Conrad, Berlin, Germany. Filed May 12, 1904. Serial No. 207,598.

Claim.—1. A ball-bearing including in combination balls and separating devices between said balls, the intermediate portions of said ball-separating devices being of material capable of absorbing and gradually releasing a lubricant, said intermediate portions being combined with protectors, and with end plates separating the same from the balls.

821,751. Mud-Guard for Motor-Vehicles. Charles Schmidt, Detroit, Mich., assignor to Packard Motor Car Company, Detroit, Mich., a corporation of West Virginia. Filed March 10, 1905. Serial No. 249,443.

Claim.—1. In a motor-vehicle, the combination with the vehicle-body and the wheels, of the relatively fixed mud-guards extending over said wheels and the flexible and detachable mud-guards extending between the fixed mud-guards and the vehicle-body.

821,804. Mechanical Speed-Indicator. Thomas Hooker, Syracuse, N. Y. Filed Sept. 12, 1903. Serial No. 172,903.

Claim.—1. A mechanical speed-indicator comprising a revolving element having an independent centrifugal movement produced by its rotation, means actuated by the centrifugal movement of said element to indicate its speed of rotation, variable-speed driving means to rotate said element, and manually-operated means for adjusting said driving means to cause said element to revolve at a constant speed.

821,828. Muffler. Lucius J. Phelps, Stoneham, Mass., assignor, by mense assignments, to Shawmut Motor Company, Boston, Mass., a corporation of Massachusetts. Filed April 10, 1905. Serial No. 254,797.

Claim.—1. In a muffler, the combination of a shell having an inlet and an outlet, a lining composed of woven-wire sections flanged at their ends, and apertured partitions of asbestos felt held between sheets of woven wire.

821,858. Pneumatic Tire. Hans L. Christiansen, Boston, Mass., assignor of one-third to Harald Tidemand and one-third to Ole Worm Dahl, Boston, Mass. Filed May 24, 1905. Serial No. 261,933.

Claim.—1. The combination with a wheel, of a pneumatic tire therefor provided with transverse passage-ways, and lacings extended through said passage-ways and about the rim of the wheel for attaching the tire to the wheel, substantially as described.

821,871. Cushioned Pneumatic Tire. David B. Hislop, Aberdeen, Scotland. Filed Sept. 16, 1905. Serial No. 278,829.

Claim.—A wheel comprising a hub, side members secured thereto, an elastic cushion 10 gripped between the outer edges of said members, bolts adjacent to the outer edges of said members for holding the members in gripping relation with the cushion, a plurality of blocks having slots therein through which bolts pass, said blocks lying between the members, an annular inflatable bag arranged between the side members and the hub and blocks and a cushion between the outer edge of said bag and the inner edges of the blocks, said blocks being arranged with a space between their adjacent edges.

821,882. Roller-Bearing. Julius A. Perkins, Omaha, Nebr., assignor to Moffett Bearing Company, Council Bluffs, Iowa. Filed Nov. 14, 1903. Serial No. 181,134.

Claim.—1. In a roller-bearing, an axle, a box, a rider, a plurality of leader-rolls sustained therein, and a series of detached bearing-rollers and separators maintained in parallelism with and by leader-rolls.

821,915. Lubricating Device for Internal-Combustion Engines. George J. Altham, Swansea, Mass. Filed July 17, 1905. Serial No. 269,913.

Claim.—1. In an internal-combustion motor, a reciprocating piston; a crank-chamber; an oil reservoir located lower than the crank-chamber; means whereby the crank-chamber and the oil reservoir are in communication; and a valve controlling the communication between the crank-chamber and the oil-reservoir, the movements of said valve being controlled by the compression and rarefaction of the atmosphere in the crank-chamber.

822,021. Tire for Vehicles and the Process of Making the Same. Thomas C. Sanderson, West New Brighton, N. Y. Filed July 14, 1905. Serial No. 269,574.

Claim.—1. The process of making a vehicle-tire which consists in forming a cellular mass containing a suitable gaseous fluid under pressure, filling an annular tube with a suitable compressed fluid, and forcing the cellular substance with its contained gaseous fluid into the annular tube and simultaneously expelling the fluid contained in the annular tube while maintaining the contained gaseous fluid under pressure.

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822,034. Clutch Mechanism. Earl E. Wright, New Brighton, Pa. Filed April 17, 1905. Serial No. 255,931.

Claim.—1. In a clutch mechanism, the combination with a driven shaft, of a driving-shaft rotatably connected to the end of said driven shaft, a wheel carried by said driving-shaft, a plate mounted upon said driven shaft, outwardly-extending arms carried by said plate, segment-shaped shoes slidably mounted upon said arms and adapted to engage the inner surface of the rim of said wheel, a sleeve slidably mounted upon said driven shaft, rods connecting said shoes in said sleeve, a casing secured to the side of said wheel and inclosing the above-mentioned elements, said casing having an opening, means to normally hold said shoes in engagement with said wheel, and means to move said shoes out of engagement with said wheel, substantially as described.

822,104. Motor-Car. Michael Ehret, Philadelphia, Pa. Filed Dec. 30, 1905. Serial No. 293,904.

Claim.—1. A motor-car provided with a tonneau structure, having an extended back portion with a double casing inclosing a chamber for receiving a spare tire or tires.

822,162. Motor-Vehicle. Charles Stumma, Brandon, Iowa. Filed Aug. 11, 1905. Serial No. 273,780.

Claim.—1. In a motor-vehicle, traction-wheels having spur-gears connected therewith, shafts having pinions meshing with said spur-gears and provided at their inner ends with bevel-gears, and means for driving the latter including shafts supported independently for rotation, pairs of pinions slidable upon and rotatable with said shafts, and means for effecting simultaneous adjustment of the pair of pinions upon each of said shafts independently of those upon the other shaft.

822,172. Internal-Combustion Engine. Solon B. Welcome, Los Angeles, Cal., assignor to Western Iron Works, a corporation of California. Filed April 24, 1905. Serial No. 257,025.

Claim.—1. In an internal-combustion engine the combination with the cylinder provided with an air-inlet extending upwardly therefrom and open at its upper end, an oil-supplying connection having an outlet opening into said air-inlet and a water-supply connection having an outlet opening into the air-inlet, between the oil-outlet and the cylinder.

822,176. Hydrocarbon Turbine-Engine. John Zander, Chicago, Ill. Filed May 23, 1905. Serial No. 261,763.

Claim.—1. In a hydrocarbon turbine engine, the combination of a shaft, a fan secured to the shaft and rotatable therewith, a fan-casing within which the fan is located, an explosion-chamber in communication with the fan-casing, a turbine-casing in communication with the fan-casing and consisting of an inner cylindrical chamber provided with a central opening at its discharge side and an annular distributing-chamber surrounding the inner chamber, nozzles between the two chambers, a turbine-wheel located within the cylindrical chamber and provided with an open outer face adapted to discharge the products of combustion through the central opening in the cylindrical chamber, substantially as described.

822,177. Protecting Cover for Pneumatic Tires. Eugéne Bardou, Louis Clerc and Bernard Desouches, Paris, France. Filed Nov. 14, 1905. Serial No. 287,274.

Claim.—1. A protecting-cover for pneumatic tires composed of a flexible annular base, means for attaching such a base on the tire and wheel, and a pad fixed onto said base at the tread and made of fibers twisted into cords which are then united together.

822,236. Vehicle-Brake. Augustus A. Ball, Jr., Lynn, Mass., assignor, by mense assignments, to General Electric Company, a corporation of New York. Filed Aug. 10, 1903. Serial No. 168,923.

Claim—1. In a vehicle-brake, the combination of a divided driving-axle and differential gearing, a yoke for the gearing, comprising side plates separably connected by top and bottom plates, brake-drums provided on each member of a divided axle, brake-bands for the drums each mounted on a side plate of the yoke and removable therewith, and means for operating the brake-bands.

822,268. Steering-Check for Automobiles. Henry Geisenhoner and David Miller, Schnectady, N. Y., assignors to General Electric Company, a corporation of New York. Filed Oct. 19, 1903. Serial No. 177,547.

Claim.—1. A steering-check for automobiles, comprising a rotatable arm, a stationary shell, radially-disposed dogs pivotally supported by said arm and engaging with said shell, and a shaft having a wiping engagement with the dogs for unlocking them and rotating said arm.

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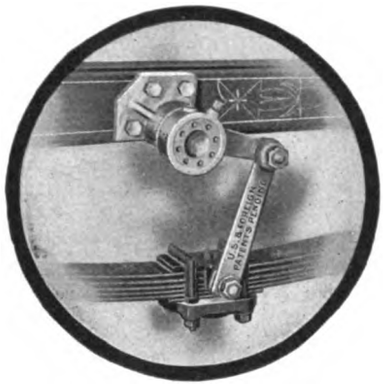
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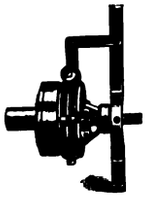


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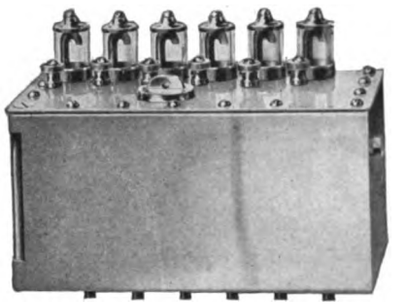
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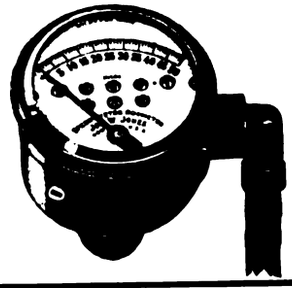
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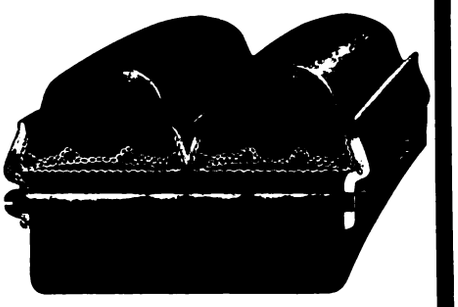


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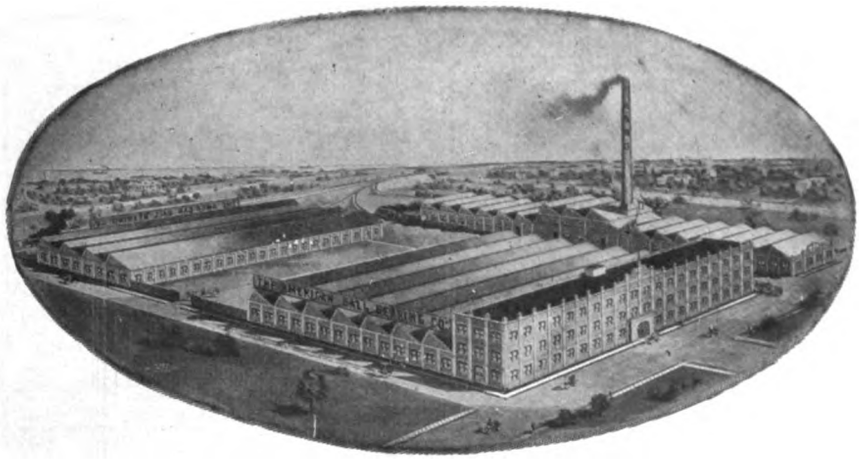
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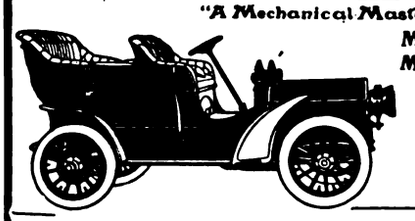
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Double Three-Point Suspension.
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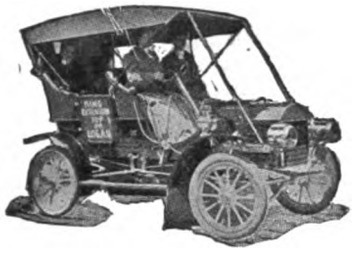
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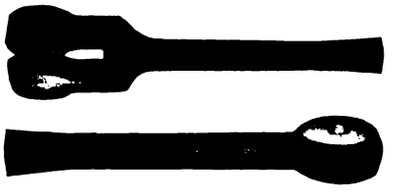
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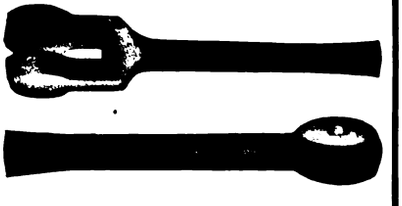


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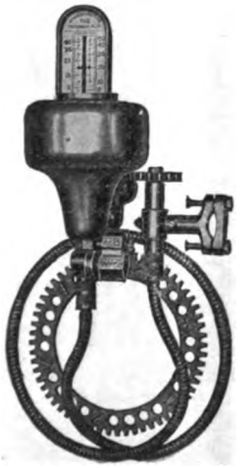
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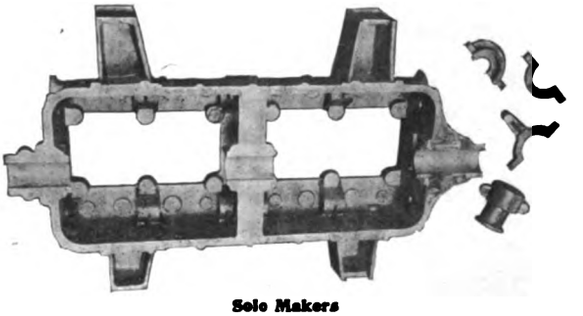


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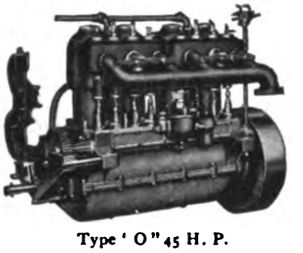
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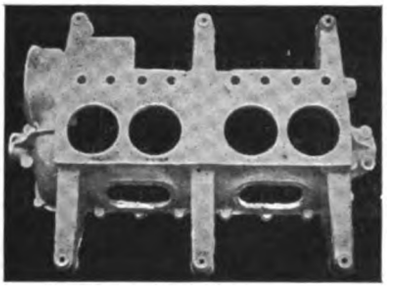
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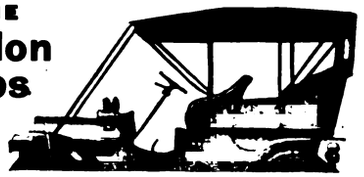
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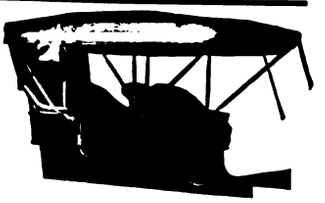
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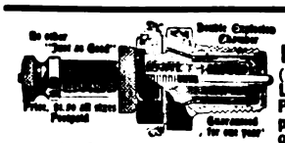
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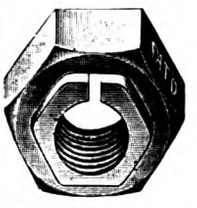
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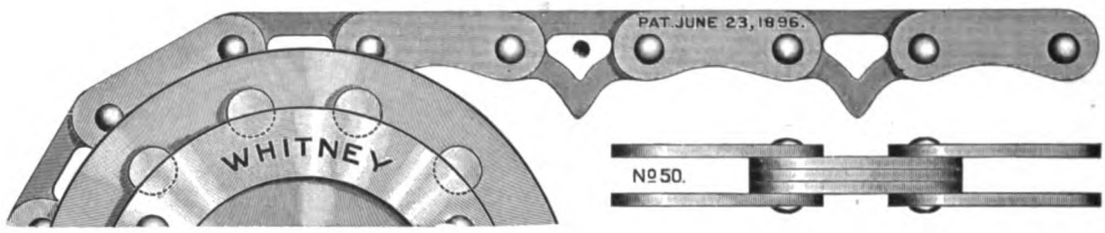
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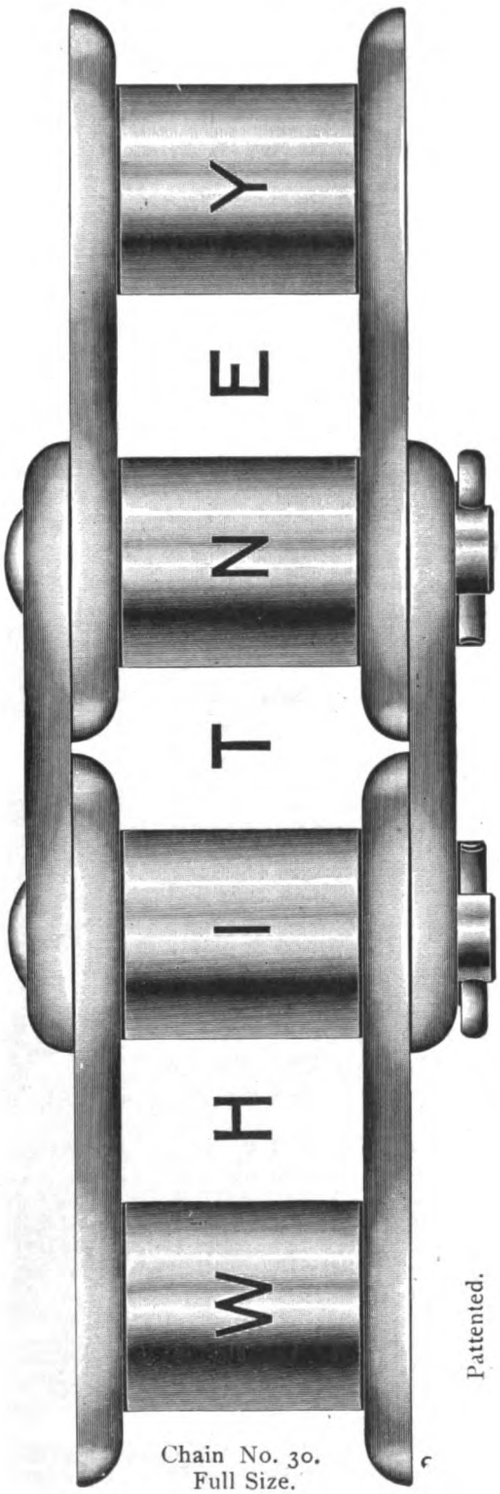
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Patented.

"WHITNEY" CHAINS

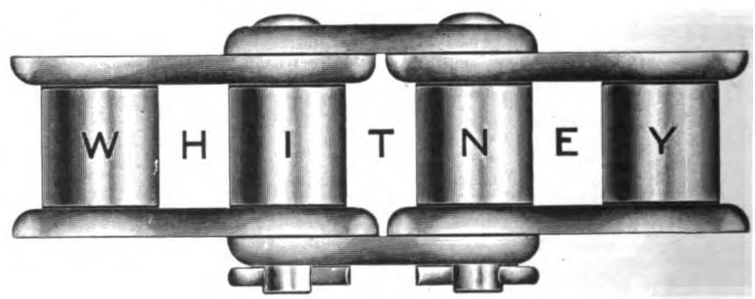
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Full Size.



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Has it occurred to you that there is an eloquent tribute to the worth of Morgan & Wright tires in the fact that the users of them are seldom heard to talk of their tire troubles?

We are egotistical enough to believe that the tires merit this tribute.

Furthermore, we can prove to you that we are correct in our belief.

There is no method of making friends equal to the method of making good.

CLINCHER———DUNLOP———BAILEY "WON'T SLIP" TREAD



Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect We guarantee our tires only on rims so branded.

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THE ELMORE WAY.

Of course you have been reading about the Elmore Two-Cycle Motor, and the advantages it possesses over the ordinary four-cycle type. But do you know the essential differences between the two systems?

The terms are rather mystifying to a layman. If you were to substitute the word "stroke" for cycle, it would make the sense clearer.

It requires four strokes of the piston—two outward and two inward—to complete an impulse with the four-cycle engine.

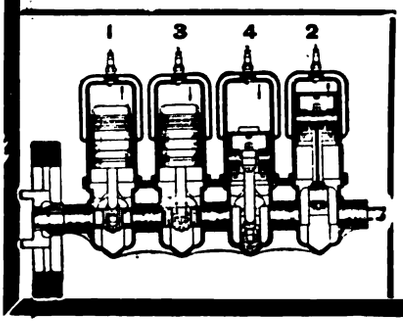
In the Elmore Two-Cycle Motor two strokes—one in and one out—are all that are needed.

To go a little farther, you must know that a four-cycle cylinder is made effective through the action of a pair of valves; one to allow the explosive mixture to enter the combustion chamber, and the other to let the burnt gases out later. To operate these valves exactly, some sixteen to twenty auxiliary parts are absolutely necessary, and when the engine is revolving 1,200 times a minute, each valve must be at 1/200 of a second adjustment. Any variation entails a great loss in power. Nice work, you see, even when everything goes well.

The Elmore Two-Cycle has no valves—not one small part to keep at concert pitch eternally. The explosive and burnt gases enter and leave through ports that are uncovered and covered by the piston itself.

Now you see why the Elmore is ahead all around.

Positive impulse at every outward piston stroke, as against every other stroke in the case of the four-cycle.



An equally positive valveless system to provide the gas.

No valves to bother with or replace.

Constant torque because of double the impulses possible with an equal number of four cycle cylinders. You'll be interested in Elmore literature. What's your address?

Model 15, Four Cylinder, Two Cycle Elmore, $2,500.

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Continental Caoutchouc Co.

G & J TIRE CO.

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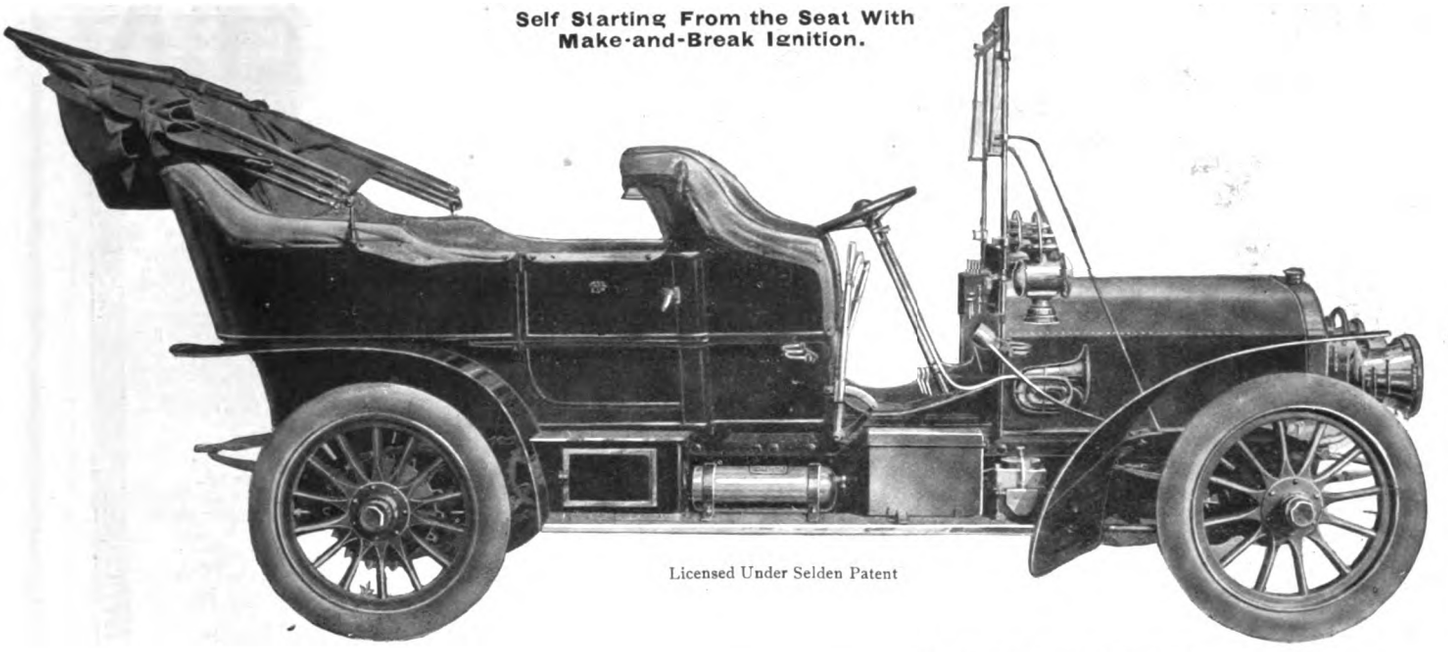
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CHROME-NICKEL STEEL used throughout in construction of shafts, transmission and gears.

"Matheson"

HESS-BRIGHT IMPORTED — ball-bearings secure perfect transmission of power from engine to wheel.

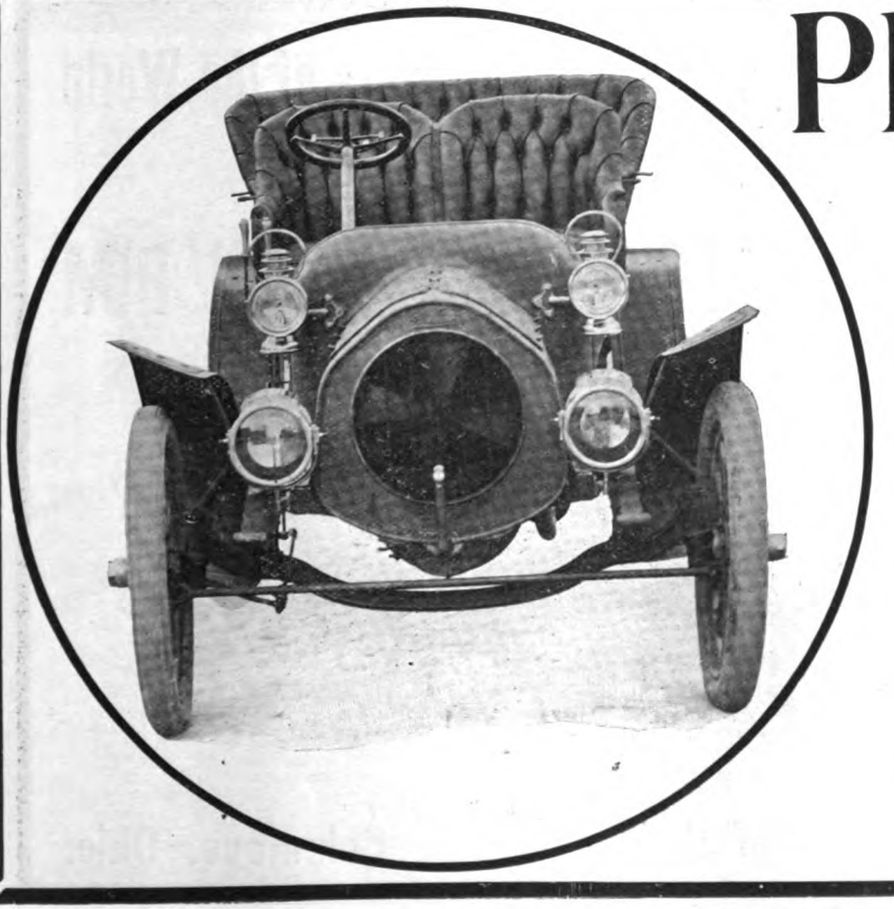
Self Starting From the Seat With Make-and-Break Ignition.



Licensed Under Selden Patent

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DEF.—First in rank or position.

The Premier car here shown worthily bears its name. It's as good as most cars twice its price and twice as good as cars at anywhere near its own price.

Here are a few specifications:

Up-to-date design, I-beam section axle, selective type sliding gear transmission on Annular Ball Bearings, well designed bevel drive rear system, ideal and reliable oiling system, liberal sized tires, pleasing body design, luxurious upholstering, powerful and dependable air-cooled motor which performs well in hot or cold weather.

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And the Goodrich Detachable Rim is just as perfect as the Goodrich tire.

Holds the tire on deflated or inflated.

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Let us send you the book.

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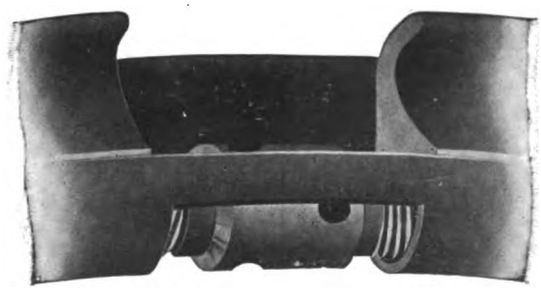
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Pioneer Steel Wheel and Universal Rim Manufacturers of the World

Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

Sole Makers of the HARTFORD UNIVERSAL RIM for DUNLOP AND CLINCHER TIRES



MIDGLEY MANUFACTURING COMPANY, - - Columbus, Ohio.

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The "Maxwell"

Perfectly Simple Simply Perfect



20 H. P. Touring Car, $1,450

WHAT DO THE OWNERS SAY?

That is the best question to ask, when selecting an automobile.
Maxwell owners are the Maxwell's best advertisements.
The contentment and satisfaction that stand out all over them is the most "catching" thing in the motor world.
Just talk to one of them and get the "sunny side" of the automobile question.

Multiple Disc Clutch. Three-point Suspension of Motor and Transmission (Unit). Metal Bodies. No Noise. No Vibration.

Send for our book "Facts and Testimony" which contains letters from 32 owners who enjoy telling what they know of the "Maxwell."
Free to those sending for our catalogue.

Write Dept. 2.

MAXWELL-BRISCOE MOTOR COMPANY

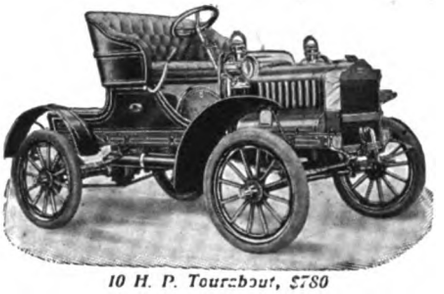
Members American Motor Car Manufacturers' Association.

CHICAGO, ILL. FACTORIES: PAWTUCKET, R. I.

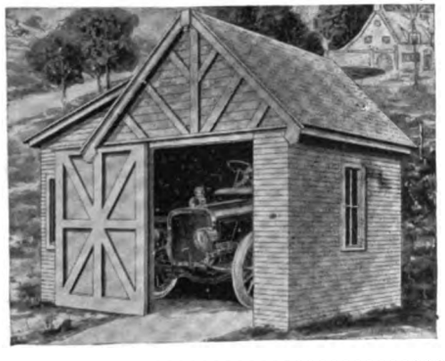
Main Plant: TARRYTOWN, N. Y.

BRANCHES:

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10 H. P. Tourabout, $780



So Practical You Know

Sensible Portable Garages

You Save Money By Getting The Premier Garage

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There is nothing about a Premier that does not give satisfaction. Portability—durability—neat appearance—and the price. You see, it can be erected in two hours, is as strong as a permanent house, at one third the cost. No wonder Premiers are premier. Remember, it is only us who build the Premiers—nobody else can.

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Hold it away from you and see. It's the scale of the **Warner Auto-Meter** actual size. It says your Automobile is traveling 8 miles an hour. It is just as steady on your car as it is in your hand—for the scale of

Accurate at all speeds

The Auto-Meter

Goes on the Dash Board.

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is not influenced by the jar of the car—speed alone moves it. It doesn't bob around, the way other indicators do, until you are not certain whether it says 5 miles or 15.

Let us tell you more about this wonderful instrument—how its's made with sapphire jewels like a watch, yet is so strongly built that it takes an axe or a bad collision to break it or render it inaccurate and how and why we are safe in selling it under a more liberal **GUARANTEE** than any other manufacturer **dares** to give. When you write we'll send you also a trouble-saving 50 cent book. **Auto Pointers**—invaluable to a man who drives his own car.

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For 1,000 miles and 1,094 3/16 miles in 24 hours
Made Nov. 17, 1905 STILL STAND UNEQUALLED



Proving National Superiority

4 Cyl., 35-40 H.P. - $3,000 6 Cyl., 50-60 H.P. $4,000

NATIONAL MOTOR VEHICLE CO.
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Double Crushing Strength Ordinary Balls

¼ inch Crucible steel balls' crushing strength, 50,000 to 56,000 lbs.
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Guaranteed true to .0001 inch in diameter and sphericity.
Prices quoted on request.

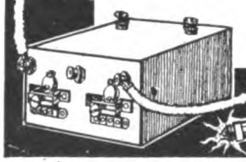
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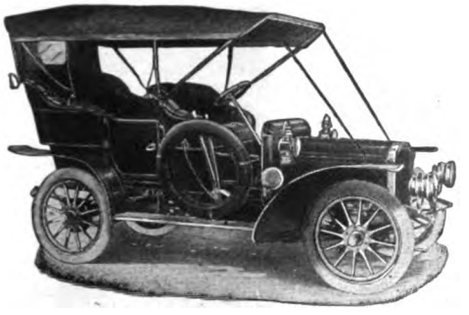
Avoid any chance of trouble by seeing that your coil bears the name SPLITDORF.

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Aerocar



Model A, 1906—24 H.P., Four Cylinder, Air Cooled—Delivered promptly complete in every detail of equipment as shown in illustration, including Standard Extension Black Top—Two Gas Headlights—Full Oil Lamp Equipment—Pres-to-Lite Tank—Hartford Shock Absorbers—Gabriel Horn—Speedometer—Extra Tire and Inner Tube in Waterproof Case with attaching Irons—Robe-rail and Foot-rest in Tonneau—Tool Box with full equipment on Running Board.

$2,800 f. o. b. Detroit.

Price with Lamp Equipment, $2,500.

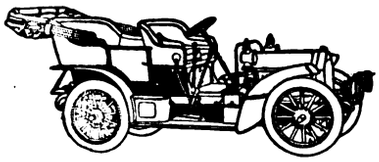
The motor car of **greatest flexibility**—awarded First Prize for flexibility at the Open Air Show and Carnival at the Empire City Track, New York, May 24, 1906, and there were sixty contestants.

The Aerocar Company

DETROIT, MICH., U. S. A.

Members of American Motor Car Manufacturers Association.





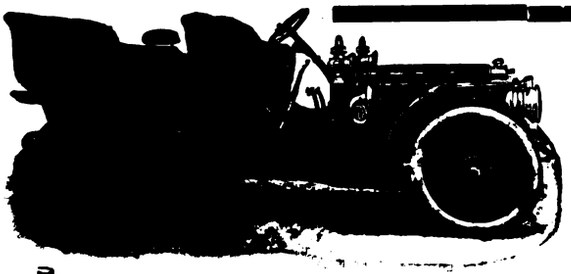
Our catalogue omits generalities. Dwells on the specific points in which the automobilist is interested.

Locomobile

COMPANY OF AMERICA

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Member A. L. A. M.



Every car is tested to 60 miles an hour.

The 50 H. P.

THOMAS FLYER

($3,500)

owes its superiority to merit alone. It is the best car because it contains all the really great features that have been developed on either side of the ocean.

The triumphant result of combining French and American engineering ability, with the finest constructive skill of this country.

Shall we send you full literature concerning this world-famous car?

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Members Association of Licensed Automobile Manufacturers.

E. J. WILLIS CO.

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NEW SPEEDOMETER,
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AT LOWER PRICES THAN ANY OTHER MAKE.

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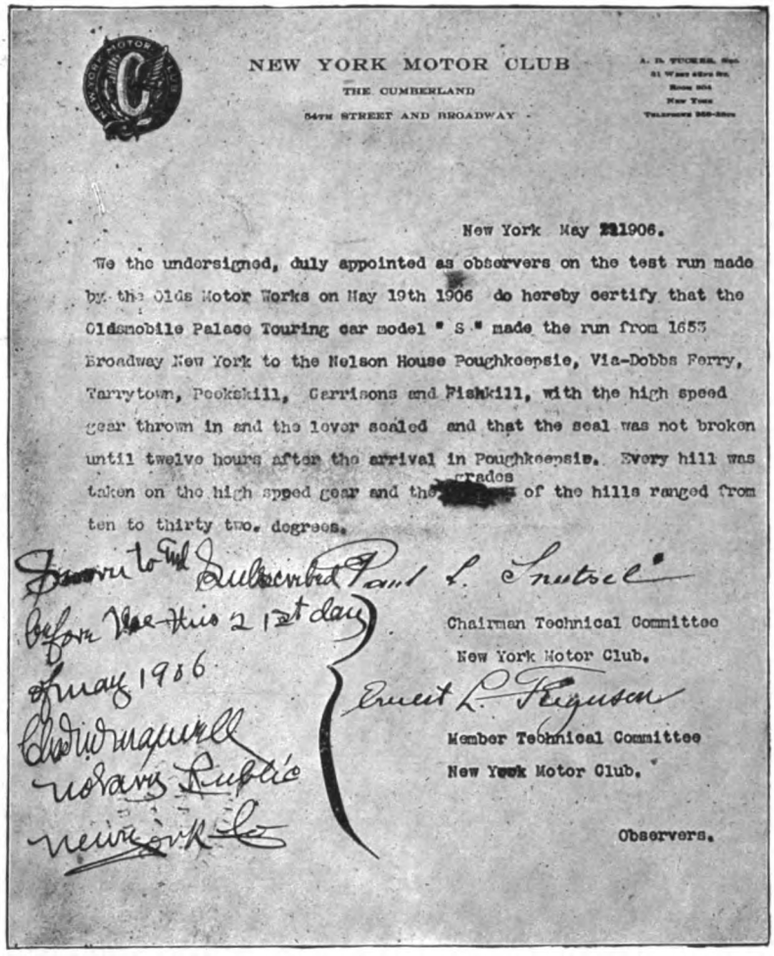
8 Park Place, **NEW YORK**

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OLDSMOBILE

Palace Touring Car.
Price, 2,250.

The following sworn statement from the Technical Committee of the New York Motor Club, testifies to the remarkable flexibility of this car:



NEW YORK MOTOR CLUB
THE CUMBERLAND
54TH STREET AND BROADWAY

New York May 21 1906.

We the undersigned, duly appointed as observers on the test run made by the Olds Motor Works on May 19th 1906 do hereby certify that the Oldsmobile Palace Touring car model "S" made the run from 1653 Broadway New York to the Nelson House Poughkeepsie, Via-Dobbs Ferry, Tarrytown, Peekskill, Garrisons and Fishkill, with the high speed gear thrown in and the lever sealed and that the seal was not broken until twelve hours after the arrival in Poughkeepsie. Every hill was taken on the high speed gear and the grades of the hills ranged from ten to thirty two degrees.

Sworn to and Subscribed Paul L. Snitzler
Before me this 21st day
of May 1906
Chas. W. Maxwell
Notary Public
New York Co

Chairman Technical Committee
New York Motor Club.

Ernest L. Ferguson
Member Technical Committee
New York Motor Club.

Observers.

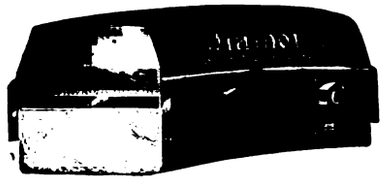
Write for more of the details of this interesting run. We will gladly send them on request. Address Dept. K.

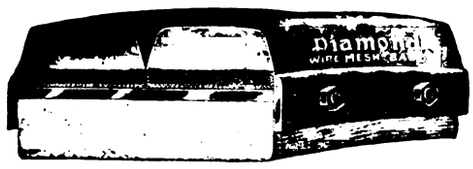
OLDS MOTOR WORKS, Lansing, Mich., U. S. A.

Members A. L. A. M.

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Nearly twice the area presented to the ground by any other make, takes up the shocks in





Diamond

Wire Mesh Base Solid Tires

FOR MOTOR TRUCKS AND COMMERCIAL CARS.

Hence the weight is supported on twice the surface offered by other tires and Diamond Wire Mesh Base Construction easily and naturally exceeds all others in wear.

The broad tread of tough, firm rubber does away with the marked distortion under load which is such a common fault of the other makes.

Diamond Wire Mesh Base Tires can be easily and quickly applied or removed **by you, wherever you may be,** without the use of any machinery.

The only scientifically correct tire ever offered for the purposes named.

Twin and triple types used for tires above five inch size.

Let us send you our special catalogue, which explains Wire Mesh Base Construction fully and interestingly.

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

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The Goodyear

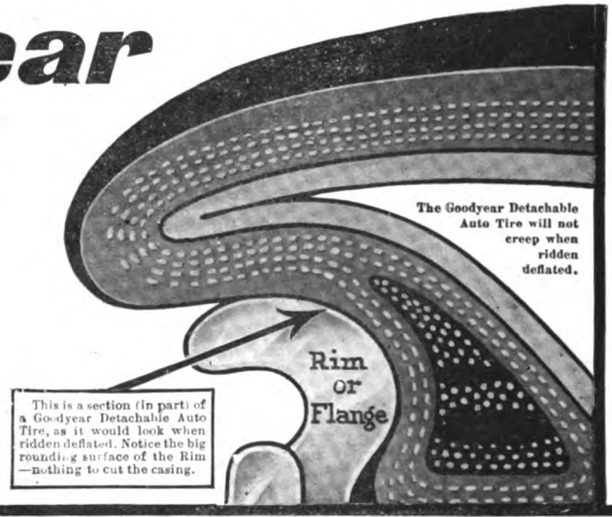
DETACHABLE

AUTO-TIRE

ON

Universal Rim

can be ridden deflated for miles over country roads or rough pavements without material injury, for it



This is a section (in part) of a Goodyear Detachable Auto Tire, as it would look when ridden deflated. Notice the big rounding surface of the Rim—nothing to cut the casing.

CAN'T RIM-CUT

The illustration plainly shows why. Call at any of the following stores and learn the dozens of other trouble and time-saving features

Boston, 261 Dartmouth St.
New York, cor. Sixty-fourth St. and Broadway.
Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
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Denver, 220 Sixteenth St.
Detroit, 242 Jefferson Ave.

The Goodyear Tire and Rubber Co., Grove Street, Akron, O.

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HAYNES ENGINES

THE engine is the ALL IMPORTANT part of an Automobile. It determines the car's value more than all other parts combined.

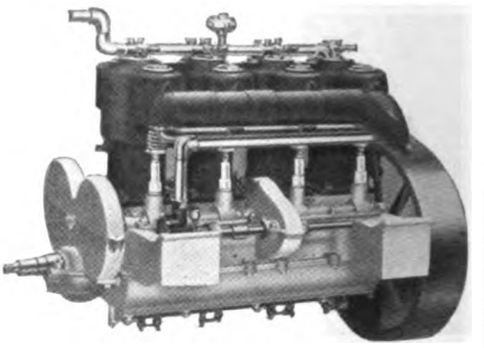
The "HAYNES" engine, built in our own factory, harmonizes perfectly with all other parts of the car.

Noise and vibration have been reduced to a minimum. Every working part is immediately accessible for repairs, adjustment and inspection. Lower half of crank case easily removed, giving ready access to crank shaft, connecting rods, pistons and bearings. Cam housings are external.

"HAYNES" piston ring construction gives much higher H. P. than ordinary rings. Each piston is fitted with three sets of triplicate rings, in addition to which a wrist pin is held in position by a single ring in a fourth groove, making ten rings to each piston. Cylinders are cast from a specially compounded metal, which takes a polish like glass and insures perfect compression and high power.

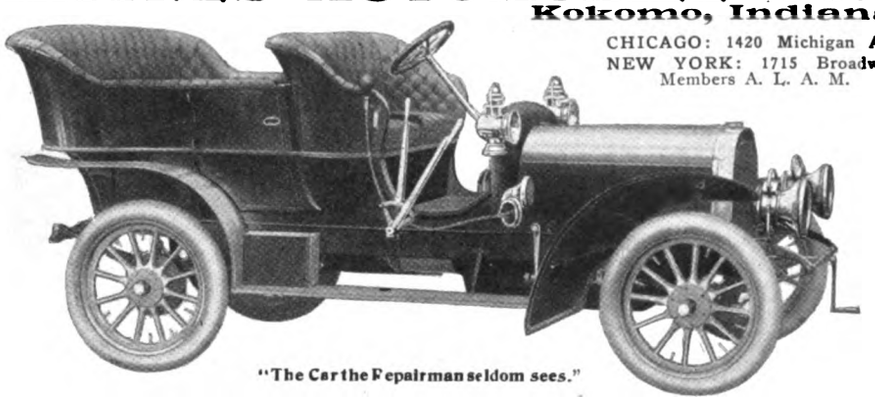
In requesting catalogue, for prompt attention address Desk D 19.

THE "HAYNES" IS THE HIGHEST POWERED SHAFT-DRIVEN CAR BUILT.



HAYNES AUTOMOBILE CO.
Kokomo, Indiana.

CHICAGO: 1420 Michigan Ave.
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Members A. L. A. M.



"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5¼x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,500 f. o. b. Kokomo. Full equipment.

Model "O" Four-Cylinder Touring Car

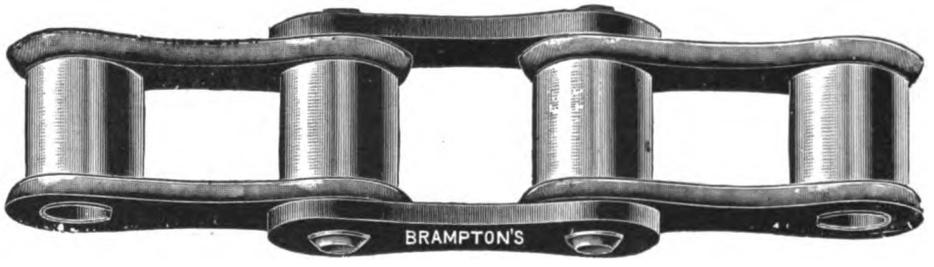
Cylinders cast in pairs 4¼x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.

POWER

At this stage of automobile development, the power transmission by chain is most popular.

Properly cut sprockets, and the best and strongest chain in the world.

THE BRAMPTON



Which is made of self-hardening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

The matter of repairs and replacements is simple.

YOUR CHOICE.

The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars. **Special chains to fit Indian motorcycle.**

CHAS. E. MILLER, MANUFACTURER, JOBBER, EXPORTER AND IMPORTER,
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BRANCHES: New York City—924 Eighth Ave.
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G & J Motor Car Tires

Made in the shape they assume in service, relieving strain on the fabric.

NO LOOSE COVERS

Fitted with a flap, giving a perfect seating for the inner tube.

NO PINCHED TUBES

Made with a raised tread, giving added wearing surface.

Why not buy THE BEST TIRES when they cost no more than others.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

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The Incomparable WHITE

The Car for Service.



TIRE ECONOMY.

Every motorist knows that up-keep of tires is, in the case of most cars, a heavy item of expense. The testimony of all critical observers, including those in the tire trade, is that White cars have far less tire trouble than any other make of touring car. This great advantage is due partly to the fact that the White starts without jerk or jolt and that changes of speed are effected gradually without any sudden strain on tires and machinery. Another factor reducing tire expense on the White to a fraction of that on other cars, is that the White glides along smoothly and absolutely without vibration. In other words, the only jolts to which the tires are subjected are those of the road.

As an experienced motorist has expressed it, "The wear on tires on the White car is all from beneath and none from above."

Write for our new testimonial pamphlet.

WHITE SEWING MACHINE COMPANY
CLEVELAND, OHIO

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Pope-Hartford

MODEL G.

There's the maximum of enjoyment and minimum of care and expense in a 2-cylinder gasoline car whose cardinal points of value have been proved by a season's use, and whose details of design, construction and equipment have been improved in accordance with the suggestions that come only with experience.

If you want a car for yourself or for family use, dependable, easy running, a good hill climber and efficient in the broad sense of the term, a machine you can drive and care for yourself, you cannot offord to overlook the Pope-Hartford Model G, which gives unusual value for the price.

Body: Divided front seat and double side entrance tonneau. **Seating capacity:** Five. **Motor:** 2-cylinder opposed, located under the hood. Horse power, 18. **Ignition:** Jump spark. **Transmission:** Sliding gear, three speeds forward and reverse. **Drive:** Shaft with bevel gears. **Brakes:** Double acting brakes expanding in drums attached to each rear wheel hub; double acting band brake attached to rear of transmission shaft. (With top $100 extra.) **Price, $1,600.**

Write for Catalogue.

Pope Manufacturing Co.

HARTFORD, CONN.

New York City, 1733 Broadway.
Washington, 819 14th Street, N. W.
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Members Association of Licensed Automobile Manufacturers.



THE SIGN OF QUALITY.

From time immemorial the word "sterling" and the sign which represents it have been used to indicate thorough worth.

Never was the word more appropriately applied to a product than when it is used in connection with FIRESTONE MECHANICALLY FASTENED PNEUMATIC TIRES.

In their manufacture, we use the highest grades of fabric obtainable and the purest quality of rubber.

Our workmen are skilled tire makers. Absolutely no detail is spared which is calculated to add to the superb quality of FIRESTONE TIRES.

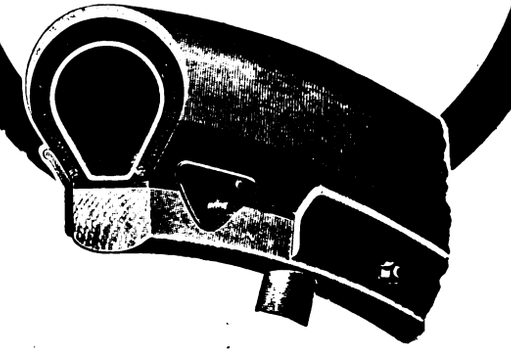
Our fastening device is the acme of simplicity. Anyone can remove the largest FIRESTONE PNEUMATIC TIRE in a very short time and with little effort.

Rim cutting is impossible where FIRESTONE TIRES are used. As no chisels or levers are used in their removal and replacement, injury to the casing never occurs from this source. For these reasons, the FIRESTONE is the most economical Pneumatic Tire yet produced.

Firestone Tire & Rubber Co.

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CHICAGO—1442 Michigan Ave.
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Columbia

AGAIN VICTORIOUS.

At the meet of the North Jersey Automobile Club, at Hohokus Track, Saturday, June 9th. **A Columbia 24-28 H. P. Car. Mark XLVI** stripped, driven by Eddie Bald, won the three-mile free-for-all event, beating seven other cars of leading makes.

This is a third consecutive victory for Mark XLVI, including its successes at Dead Horse Hill and Readville.

Price, $3,000.

Separate catalogues of Columbia gasolene cars, electric carriages, and electric commercial vehicles on request.

MADE BY

ELECTRIC VEHICLE COMPANY, Hartford, Conn.

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Members Association of Licensed Automobile Manufacturers.

THE MAN IN THE CAB

with his unswerving allegiance to duty, represents the care, forethought and consideration which the

LAKE SHORE
& MICHIGAN SOUTHERN RAILWAY

gives to every detail of its wonderful system for the easy and safe transportation of the thousands who annually travel from East to West, and vice versa, over their famous trunk line.

Direct Connections Between Boston, New York, Buffalo, Cleveland, Chicago, Pittsburg, Cincinnati and St. Louis.

HEALTH FOR YOU

flows out of the rocks at the various medicinal springs at

FRENCH LICK-WEST BADEN SPRINGS

in the highlands of Southern Indiana. This is the season of the year when a brief visit there will restore the normal balance of your system—renew appetite—put you in condition.

Outdoor and Indoor Recreations in Plenty—Golf Playing Now

Superb Hotel Accommodations.

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CHICAGO, INDIANAPOLIS & LOUISVILLE RAILWAY

Hotel Rates range from $8 to $35 per week, including free use of all the waters.

Booklet telling all about the waters and giving list of Hotels and Boarding Houses, with their rates, sent free.

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MICHELIN—

To go, To get home, To be safe when you are speeding, For long tours—no worriment—no defective rubber, no rim cuts—nothing cheap. The best is not too good for you.

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EXCLUSIVE AMERICAN AGENTS

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WHY IS THE

ROYAL TOURIST

FAMOUS?

ASK AN OWNER.

ROYAL

Model G. $3500.00 40 H. P.

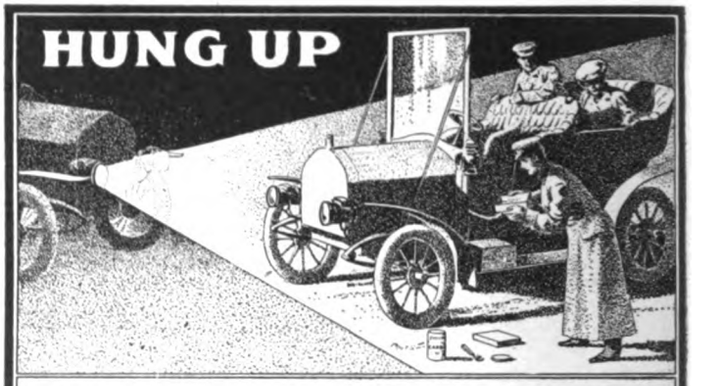
THE ROYAL MOTOR CAR CO.

Cleveland, Ohio.

AGENTS: C. A. DUERR & CO., New York, N. Y.; G. J. DUNHAM, Boston, Mass.; THE McDUFFEE AUTOMOBILE CO., Chicago, Ill.; G. W. CAPLIN, Minneapolis, Minn.; AUTOMOBILE & SUPPLY CO., Lim., Toronto, Ont.; MOTOR SHOP, Philadelphia, Pa.; REYBURN MOTOR CAR CO., St. Louis, Mo.; STANDARD AUTOMOBILE CO., Pittsburg, Pa.; AMOS-PIERCE AUTO CO., Syracuse, N. Y.; SCHOEFFEL CO., Rochester, N. Y.; ROYAL MOTOR CAR AGENCY, San Francisco, Cal.

Member A. L. A. M

HUNG UP



Ever see anything like what's happening to the man on the right, Mr. Motorist?

And, when a man pays from $1,000.00 to $5,000,00 for a Motor Car, with an engine worth a fifth of the whole cost, body worth a tenth, wheels a twentieth and so on—all equally necessary to giving him the pleasure he expects to get for his money—isn't it just a little inconsistent to economize(?) on light which costs but 1 per cent. of the total outlay, and a risk of 50 per cent. of all the pleasure?

For the best light apparatus costs only about one hundreth part as much as the rest of the car and on it depends just about one half of all the enjoyment you can expect to get. Any Motorist will tell you that there is nothing to compare with the exhilaration of a speedy night ride.

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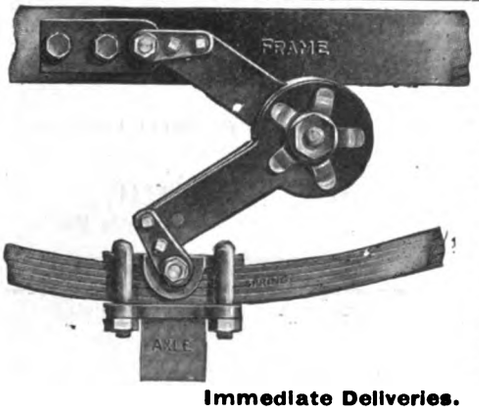
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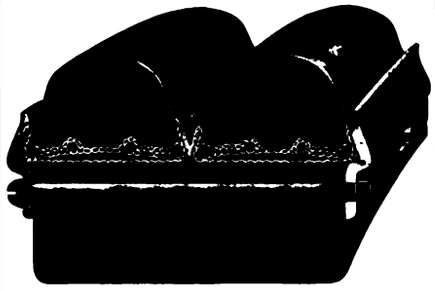


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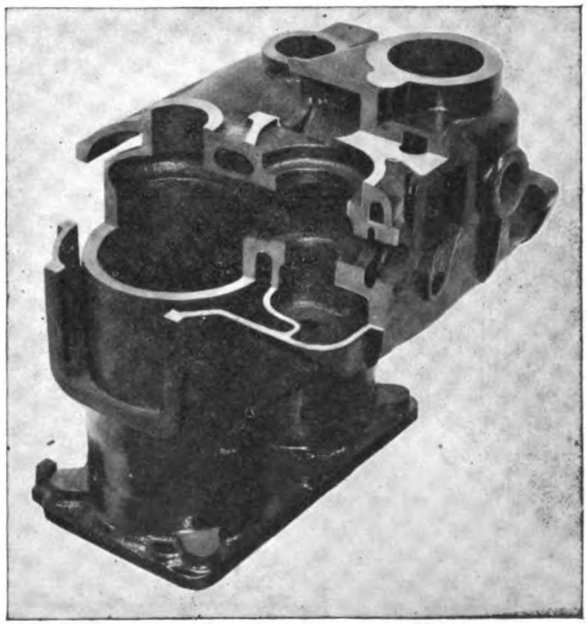
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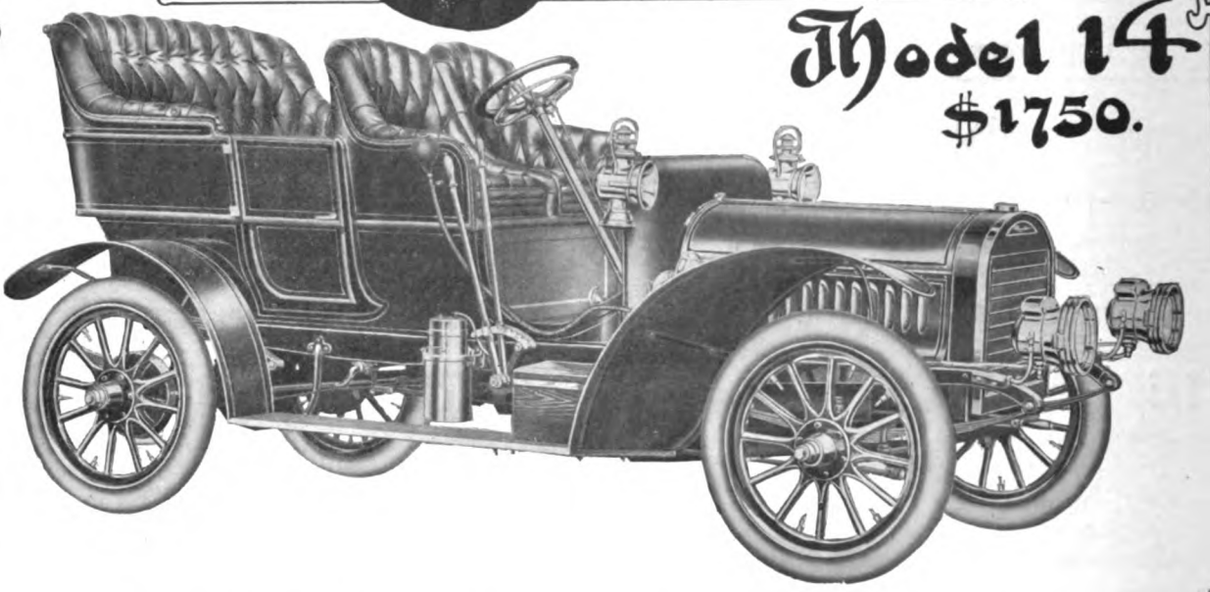
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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, June 21, 1906. No. 3

TIRE POOL TO DISSOLVE

Decision Reached with Surprising Suddenness, but one Member Voting Against it—True Cause of Break-up.

On September 1st, next, the G & J Tire Association, otherwise the "tire pool," will dissolve by mutual consent.

The decision was reached at a meeting of the association, held in New York, on Friday last, 16th inst., at which but one dissenting vote was cast. Only this solitary vote prevented dissolution on the spot. It is understood, however, that when the pool dissolves efforts will be made to form a new association solely for the prevention or correction of abuses. No definite understanding exists on this point, but there are those who forsee the real necessity for such an organization.

While the agreement to disagree is in the nature of a trade sensation and various causes have been and are being ascribed, it is known that friction has existed for some two months and that it dates from the allotment of the 1906 output and the revision of the percentage to be paid into the pool for exceeding allotted productions. The last was the sore point and the rock on which the association split. Originally, this stood at 40 per cent., a figure that did not make it very profitable for any party to the agreement to sell more tires than the number to which they had been at least nominally restricted. Later, the penalty, if it may be so called, was reduced to 25 per cent., which was still steep enough to check unwholesome overproduction.

Still later, however, the figure was reduced to 15 per cent. and then some of the factories began to "crowd on steam" and the allotments of production ceased to represent much more than mere figures. Trouble at once began to brew and it had been brewing ever since, until on Friday last it boiled over. Bert G. Work, the head of the B. F. Goodrich Co., is generally credited with being the man who brought the matter to a head. H. E. Raymond, sales manager of the Goodrich establishment, is now in Europe, but the sudden change in the situation has caused the sending of a cable that will bring him home at once.

The members of the association are the G & J Tire Co., Hartford Rubber Works Co., Morgan & Wright, B. F. Goodrich Co., Diamond Rubber Co., Fisk Rubber Co., International A. & V. Tire Co., and the Continental Caoutchouc Co.

Atlantic City Probable Meeting Place.

First returns of the mail vote of the Motor and Accessory Manufacturers' indicate the selection of Atlantic City as the place of the midsummer meeting which probably will be held during the week of July 23rd.

The Cycle Manufacturers' Association and the Cycle Parts and Accessory Association will be in session at that seaside resort during the same week and as they have invited all of the larger jobbers to join them, a meeting of the Motor and Accessory Association at the same time and place will be in the nature of a diplomatic move, as nearly all of the cycle jobbers handle automobile wares also. The bicycle associations are negotiating with the railroads for a rate of fare and a third on the certificate plan which, if obtained, will be available to the M. and A. M. as well.

Conferring About Tire Sizes.

In an effort to reach an agreement respecting tire sizes for cars of heavy weight, regarding which great diversity of opinion has existed, the Association of Licensed Automobile Manufacturers and the Tire Association have each appointed committees to "reason together." It has just come out that already one conference has been held, the committees having met at Niagara Falls for the purpose. The Licensed Association was represented by H. P. Maxim, Electric Vehicle Company; John Wilkinson, H. H. Franklin Mfg. Co., and A. L. Riker, Locomobile Co. and Henry Souther, while A. H. Marks, Diamond Rubber Co.; Thomas Midgley, Hartford Rubber Works Co., and J. C. Cole, Fisk Rubber Co., acted for the Tire Association.

BEGINS STANDARDIZING

Licensed Association Makes an Important Move—Work Commenced on Nuts, Bolts, Screws and Tools.

Ever since the automobile industry amounted to the proverbial "row of pins," standardization, and consequent interchangability, has been one of the subjects that has most easily and most frequently rolled off of both tongues and pens. The discussion has been carried to such heights that persons who cared to indulge in such fancies could scan the horizon and witness the birth of the day when sameness would be the rule and all motor cars would be duplicates, save in name and color.

However that may be, it leaked out this week that the Association of Licensed Manufacturers have reached an agreement regarding one of the few details of construction which permits of standardization becoming a practical and desirable possibility, that is, in respect to nuts, bolts and screws. Indeed, the A. L. A. M. has more than merely reached an agreement; the exact standards for each nut, bolt and screw and the heads of each, have been settled and the necessary blue prints are being prepared for the guidance of the various factory engineers and superintendents. The standardization of these parts is carried into not only every detail of the car proper, but into the engine also.

This move carries with it also the standardization of the wrenches, spanners and screw drivers which are included in the tool equipment. As a matter of course, the standards for these accessories likewise have been adopted and are in being.

Gillis to be Autocar's Manager.

H. A. Gillis is to be the new general manager of the Autocar Co., Ardmore, Pa., and not George R. Bidwell, as was reported last week. Mr. Gillis, who will not assume the duties of the office until July 1st, has been superintendent of the American Locomotive Co.'s Richmond works for the past nine years and will bring a big reputation into the automobile industry.

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TIRE TREADS ARE NOT HARD

Uncle Sam's Experts Wrestle with the Subject and Reach this Conclusion.

In a decision involving rather fine distinctions General Appraiser McClelland, on Monday last, for the Board of General Appraisers, sustained the protest of Knauth, Nachod & Kuhne, the issue raised being whether certain automobile tire treads are subject to duty at the rate of 20 per cent. ad valorem, under the provisions of paragraph 449, or at 35 per cent. ad valorem, under the provisions of paragraph 450, Tariff Act of 1897.

The Appraiser returned the merchandise as "vulcanized india rubber," and the Collector assessed duty at the higher rate. Paragraph 449 provides for manufacturers of india rubber and paragraph 450 provides for manufactures of "vulcanized india rubber known as 'hard rubber.'" The General Appraiser said in summing up:

"There is no dispute but that the merchandise in question is a manufacture of India rubber, and it is also shown by the evidence that it has been submitted to a process of semi-vulcanization, but from the sample it appears that the result of such semi-vulcanization has been to produce a soft rubber, and it would not appear to be subject to the higher rate of duty because of the qualifying words 'hard rubber,' found in paragraph 450. We think these words constitute a limitation which excludes therefrom every manufacture of india rubber, whether vulcanized or not, except vulcanized india rubber commercially known as 'hard rubber.' The provision in paragraph 449 is broader and would seem to include every manufacture of india rubber, whether vulcanized or not, which is not so known as 'hard rubber.' It is not important to the determination of this issue that the rubber in question is only semi-vulcanized, as we think any process of vulcanization would be sufficient to take the product thereof out of paragraph 449, if the result thereof was hard rubber, but since, as in this case, the product is soft rubber, it seems clear that protestants are entitled to succeed, and we therefore sustain the protests and reverse the decisions of the collector."

Confounding of the Fogartys.

Peter Fogarty, the Northern agent in New York, has had his troubles this spring. They are all due to the prominence attained by Peter A. Fogarty, the Acme agent in the metropolis. The Fogartys are in no way related, but every time anything happens to the Acme Fogarty, the Northern Fogarty "has a time of it" explaining that it was "the other fellow."

The latter has had several tilts with the police and on each occasion Peter has received a large share of the credit or of the blame. On Monday last he was in despair. The day previous Peter A. had been mixed up in an accident in which his chauffeur was killed and had been subjected to arrest. Early in the morning, the Northern Fogarty's telephone began to ring. A friend desired to extend his sympathy, to congratulate him on being out of jail and to proffer aid if it was needed. Fogarty made the usual explanation—it was "the other Fogarty." Ten minutes later the telephone tinkled again and all the forenoon and far into the afternoon it kept tinkling and always the same story and the same explanation passed over the wires.

By quitting time the atmosphere of the Northern store was distinctly depressing and Peter Fogarty was limp and yet tense and in a state of mind that suggested desperation. He does not desire to change his name and doesn't know just to do, but he says that if he has any real friends they can prove their friendship by "passing the word" that while he is a Fogarty he is not Peter A. Fogarty, but plain Peter Fogarty; he intends no reflection on Peter A., but he does want to stop the confusion somehow or anyhow.

Rebuilding a Rambler Branch.

Work of tearing down the old building at 207-209 North Broad street, Philadelphia, to make room for the modern fireproof garage of Thomas B. Jeffery & Co., has commenced. Half of the first floor will be attractively decorated and used as a show room, entrance and exit for cars being on the back street. The second floor will be occupied by offices and also space alloted for displaying second-hand machines. The third floor will be used exclusively as a work shop and there will be sufficient room for sixty mechanics to work comfortably together. The building will be of brick and stone, will measure 40x100 feet and will cost, approximately, $50,000.

Bretz in Two-fold Capacity.

J. S. Bretz, whom it was made appear last week had retired from the salesmanagement of the Corbin Motor Vehicle Co. to take up similar duties with the Hartford Automobile Parts Co., has not left the Corbin Co., his service for the Hartford parts concern being performed by amicable understanding with the Corbin interests. As a matter of fact, Bretz has formed the J. S. Bretz Co., with offices in New Britain, Conn., which will act as selling agents for the Hartford product and also as sole importers of the Fichtel & Sachs annular bearing, a German invention, the American rights of which Bretz obtained sometime since.

Whitlock Begins Building Work.

Work has been started on the additions to the Whitlock Coil Pipe Co.'s plant at Hartford, Conn., which it is expected will be completed early in the Fall. The additions will comprise three buildings, all of brick and steel construction, respectively, 220x50, 260x120 and 140x120 feet, which will enlarge the Whitlock floor space to about 175,000 square feet.

CHICAGO'S GASOLENE SCARE

Inspection of Garages Discloses Odd State of Affairs—Many Offenders Found.

Chicago's automobile row along Michigan avenue is considerably stirred up over the discovery by the city authorities that the majority of the prominent garages are violating an ordinance prohibiting the storage of gasolene or other volatile oils on public property. As most of the tanks are either buried under the sidewalk or in the adjoining alley, they come within the provision.

On one block along Michigan avenue, that between Thirteenth and Fourteenth streets, there are no less than six establishments where this is done and in every case the amount stored is in excess of 100 gallons. The Pardee-Johnson-Hamill Co., at 1220, 280 gallons; the Winton Motor Carriage Co., at 1259, with 200 gallons; Frank P. Illsley, at 1329, 260 gallons; the Branstetter Motor Co., at 1337, with 120 gallons; Githens Bros., at 1328, 230 gallons; the Electric Vehicle Co., at 1332, 280 gallons and the William Herrick Co., at 1344 Michigan avenue, 300 gallons, are some of the offenders that have been brought to the notice of the city authorities. It is estimated that something like 8,000 gallons of gasolene are stored along Chicago's automobile row.

It seems the rumpus is all due to a peculiar little habit the Windy City citizens have of violating the law first and asking for a permit to do so afterward. At a recent meeting of the council, an ordinance was passed granting permission to C. A. Coey, of 1718 Indiana avenue, to construct a reservoir having a capacity of two hundred gallons of gasolene under the sidewalk at his premises. It was found that the tank had been completed and filled with gasolene long before permission had been requested to install it. In other cases sidewalk elevators have been erected, buildings have been torn down or put up and permission to do so has been requested after the work has been completed.

Discovery of the fact that garage owners were among the followers of this "do it first and ask afterward" habit, coupled with the senseless reports in New York papers that sewer explosions have been due to waste gasolene from garages which caused the passage of a prohibitive ordinance here, has aroused the Windy City councilmen to action and more legislation on the subject will doubtless be forthcoming, though it is not probable that garage owners will have to disturb their tanks.

Damage Done in Times Square.

Fire in the five-story brick building at Broadway and Forty-first street, New York City, occupied by the Times Square Automobile Co., which broke out shortly before noon, yesterday, destroyed two automobiles and damaged six or eight others. The probable loss is about $15,000.

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IS READY FOR ALCOHOL

One Manufacturer has Concluded Successful Experiments—Duryea Gives Views.

Immediately following the signing of the denatured alcohol bill by President Roosevelt, it was announced by the American Motor Car Manufacturers' Association, that at least one of its members, the Bartholomew Co., Peoria, Ill., would have "alcohol cars" ready for the 1907 demand. It is stated that the company has been conducting experiments on an extensive scale and with such success that all of their Glide cars may be of the alcohol type. The Woolner Distillery Co., one of the largest and oldest producers of alcohol in America, is located in Peoria, and in anticipation of the enactment of the law, had made considerable investigation of the European processes and this has greatly assisted the Bartholomew operations.

The passage of the law has also brought some interesting information from the veteran Charles E. Duryea, who says that alcohol was used as far back as 1892 in one of his cars. It was then used for experimental work only.

"Our experiments proved that alcohol required either a little more heat or a little finer pulverization than the gasolene," said Mr. Duryea. "We tried to use it at the New York Automobile Show, but they would not allow its use in the Garden, although it wasn't as dangerous as gasolene. I am inclined to think that there is an increase of power obtainable from the use of alcohol, but just how much, I can't say. I think for aeronautic motors, it should be excellent because of the increased power, the freedom from soot, the lessened amount of heating, and the slightly lessened danger from fire.

"People generally consider alcohol much safer than gasolene and will be ready to adopt alcohol motors for household use, relieving much of the present drudgery, where they wouldn't use gasolene. Alcohol is another power and it only remains to be seen if it will be produced at a price low enough to permit its use in place of the more expensive fuels now in use."

Lear to Stay in Columbus.

The Oscar Lear Automobile Co., Columbus, Ohio, will not move to Zanesville, after all; it will stay where it is. Zanesville capitalists had subscribed to the proposed $100,000 loan—the inducement necessary to cause the makers of the Frayer-Miller car to leave Columbus—a site had been selected and the company was ready to sign the contract. The hitch came about when the Zanesville banks refused to assume the liability of the Zanesville subscribers to the loan, and as Columbus already had made inducements for the company to remain in that city, it decided to stay.

The Week's Incorporations.

New York City, N. Y.—Universal Battery Co., under New York laws, with $1,000 capital. Corporators—J. T. R. Bell, R. J. Walkmust, New York City, and R. J. Mulligan, Brooklyn.

New York, N. Y.—Mitchell Motor Co., under New York laws, with $30,000 capital; to deal in automobiles. Corporators—W. R. Brown, D. W. Brown and C. P. Skinner, all of New York City.

Chicago, Ill.—Western Automobile Racing Association, under Illinois laws, with $2,000 capital; to promote speed trials. Corporators—William D. Duval, Charles Weinfield and Samuel W. Ettleston.

Hartford, Wis.—The Kissel Motor Car Co., under Wisconsin laws, with $50,000 catital. Corporators—Louis Kissel, Adolph P. Kissel, Otto P. Kissel, William L. Kissel, George A. Kissel and H. K. Rutterfield.

Baltimore, Md.—The Chesapeake Motor Car and Boat Co., under Maryland laws, with $25,000 capital; to deal in automobiles, etc. Corporators—Frederick G. Taylor, Compton Riely and T. Reginald Wise, Baltimore, and H. Edgerton Riely and Alexander Alphonse Toricella, New York City.

To Build Cars in Cincinnati.

It is now definitely decided that George P. Altenberg, a Cincinnati capitalist, will build a factory to make automobiles in that Ohio city; he has not decided, however, whether he will organize a stock company with $500,000, or start the plant on his own account with an outlay of $100,000. Negotiations are under way for a large building in Spring Grove street, having 40,000 square feet of floor space, for a temporary location, but it is planned to permanently locate at Norwood, a suburb. Although none of the details of Altenberg's new car have been given out, it is said that it will be 28-30 horsepower.

Corporation to Quit; Firm will Continue.

The West Indies Transportation Co., a Connecticut corporation with $125,000 capital which does business in Havana, has filed notice of intended dissolution, a meeting of the stockholders in Hartford, on July 16 having been called for the purpose. The business will be continued, however, by the firm of Smith & Goetchius; the members of the firm, J. Condit Smith and Harry B. Goetchius, both are leading spirits in the corporation.

Fickling Buys Cover & Top.

W. I. Fickling has purchased the entire interest of the Automobile Cover & Top Mfg. Co., 154 East Fifty-seventh street, New York. The plant is being enlarged to accommodate painting and repair jobs on automobiles, together with all kinds of limousine, tonneau and automobile body work.

TREVOR'S UNUSUAL PLIGHT

Violated Selden Injunction, Fined for Contempt and his Car made Worthless.

John B. Trevor, a Columbia University law student, has just learned by practical experience what his books should have taught him, i. e., that an injunction of a United States Court means something.

The lesson was conveyed through the instrumentality of the Association of Licensed Automobile Manufacturers and suggests that that organization has not exhausted its resources in enforcing its rights under the Selden patent. It appears that in February of last year, young Trevor imported a Bollee and a Renault car, neither of which was covered by a Selden license. Trevor was soon advised of the fact and in settlement of the proceedings, he consented to the issuance of a decree of injunction against him, which was issued on March 16, 1906. These injunctions are so sweeping that the enjoined parties are forbidden to practically do more than look at an unlicensed car; they cannot sell or use one or cause one to be bought, sold or used.

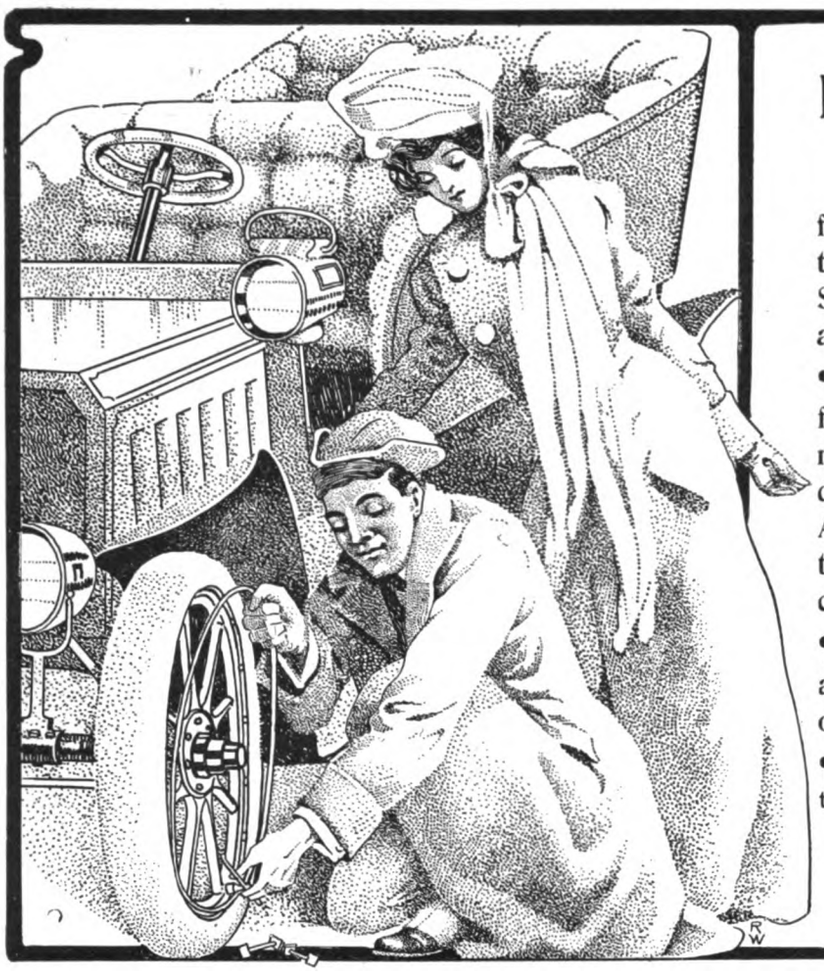
The young student of Blackstone, apparently, treated lightly the injunction restraining him from doing all those things, as it transpired in February last he had imported an unlicensed Panhard car. It was not long before he again felt the weight of the Selden hand and of the law of the land. He was charged with contempt of the court's decree. On Saturday last, 16th., Judge Lacombe, sitting in the United States Circuit Court for the Southern District of New York, found him guilty of "the said misconduct" and fined him $100. He was given five days in which to pay the penalty. Trevor took the limit. He paid the fine shortly before the court closed yesterday. He also has on hand the Panhard car which he can neither use nor sell nor permit to be used or sold—a veritable "white elephant" of the proverbial sort.

Jardine Cause of Long Journey.

Robert Jardine, designer and chief engineer, and Archie MacLachlan, treasurer of the Royal Motor Car Co., Cleveland, together with a party of two Royal carloads, including C. A. Duerr and George J. Dunham, the New York and Boston agents, arrived in Hartford, Conn., on Tuesday last at noon, after a trip over the road, starting from Cleveland on Friday night. Despite the fact that a cloudburst was encountered after leaving Syracuse, the journey was an enjoyable one. The occasion was the marriage of Miss Smith, of New Hartford, to Mr. Jardine, which was scheduled for Thursday.

W. H. Hill, the Cambridge Springs (Pa.) supply dealer and repairman, is building a fireproof garage at that place. It measures 50x60 feet and will be ready for occupancy about July 10th.

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NEW YORK, JUNE 21, 1906

The Tire Situation.

In the dissolution of the tire pool nearly every one will, in fancy, see a dissolution of tire prices also. It may be that reductions will result. The situation—the unrestricted competition that will result, undoubtedly makes for lower prices. But the situation will cause to arise also the spectres of overproduction and altered qualities—twin terrors that can play havoc with any industry. The prospect is one that will cause concern to the thinking man whose interests are involved in the health of automobile manufacture. Whatever may be said of it, the existence of the tire association served four far-reaching and beneficial purposes—it assisted greatly in the maintenance of quality, it reduced the possibility of overproduction and it assured the use of tires of safe weights and of true and properly inspected rims. The existing arrangement practically placed a premium on quality. There was no great incentive to produce cheap tires or to develop a variety of grades of tires.

Of course, those who comprise the association are among the most reputable people in the business. They have reputations to uphold and doubtless may be depended on to jealously guard them. But stresses of competition have been known to effect some amazing conditions—and the automobile tire makers have met in other fields of rivalry.

The so-called tire problem is one of the most serious that has confronted the automobile industry. The mischief that a few cheap, indifferent or faulty tires can create is well known to all. Going even further back, the full extent of the harm that baneful competition can accomplish, is disclosed in the bicycle industry. There are those who sniff at the cycling similies that are so often brought to bear, but despite the scoffing, these similies are instructive and constitute pretty safe guides even for the automobile trade. Cheap tires and a diversity of grades, some nameless, others bearing many names, which afford wide latitude in quality and in price, and the consequent road troubles, played their full part in diminishing the number of those who rode bicycles and the same influences are still at work. With the vastly greater difference in the price of automobiles and automobile tires, the same temptation to save not a dollar, but several dollars, is as strong. It will prove of potent influence for evil if it encouraged by the development of grades in the tires, which is the development most to be feared from the fiercer competition certain to follow the dissolution of the pool.

With the idea paramount that sweeping reductions in tire prices are in sight, every friend of the automobile industry should sound the slogan that good tires will still cost good money—that the best tires will bring the best prices and that no economy is so false and so expensive as that which pinches pennies out of tires. The very best tire is none too good for use on automobiles.

The Demand for Drip Pans.

A howl of large proportions is invariably raised whenever the city fathers of some inland metropolis come to a decision to pass what has achieved the familiar title of a "drip pan" ordinance through the regularity and frequency with which one city has followed another in prohobiting an automobile from coming to a stand in the street without placing a metal pan on the pavement to catch the oil dripping from the mechanism.

Theoretically, a drip pan ordinance is of about as much value to the municipality that passes and enforces one as a third leg would be to a duck, for is it not to the interest of every car owner to see that no oil leaks out of the transmission or crank case of his vehicle? Lubricating oil is not cheap and it does not pay to splash it around promiscuously over the scenery. Yet that is exactly what nine drivers out of ten do and hence the demand for the drip pan on the part of those cities that are particular about the state of their pavements.

Lubricating oil may be more sanitary than the refuse left by horses, but both are equally out of place on the pavement and the oil is not alone very much worse to come in contact with when the damage to clothing is considered, but it is also positively dangerous. It forms a "sliding pond" that is worse than the ubiquitous inverted banana peel for the average pedestrian knows the latter by sight and his bowing acquaintance is of sufficient standing to cause him to avoid this "yellow peril" sedulously. With lubricating oil it is different; its color is an approach to that of the pavement itself; it is not readily removable and it does not evaporate so that it remains a menace to the pedestrian in more ways than one for some time. At a modest estimate there were at least two gallons of lubricating oil on the pavement in front of the City Hall after the cars of the orphans' parade had departed, and the manner in which it was distributed in pools and sliding ponds formed a striking object lesson on the necessity of more care on the part of drivers.

Dangers of the Grade Crossing.

Among what may be termed the perils of the driving season as they exist for the motorist, perhaps none exerts a greater menace to safety than that of the grade-crossing. Its ever-existence and its uncertainty, coupled with the frequent escapes from it which beget contempt for its terrors, serve to make its menace all the more potent. And the fact that its aspect is innocent, and its disastrous effects purely accidental, increase its dangers. Already this year's list of mischances at the grade-crossing is being numbered. And before the chill of autumn shall have reduced the traffic over the country roads to its normal amount, the long list will have

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equalled that of former years, if not exceeded it, in all dubious probability.

But though the likelihood extends into the realm of the probable, its realization well may be considered as needless, and hence, is all the more deplorable in prospect. For there is nothing insidious about the peril of the crossing. It is always a purely local danger of small scope, it is charted on all maps, marked on danger boards. Moreover, as the trains run only at intervals, it is an intermittent danger. But in its incidental phase, lies its chiefest terror. Because a crossing has been passed in safety a hundred times, the motorist feels reasonably sure of his ability to negotiate it in safety once more. His reliance always is placed in himself, not in the element of chance. Hence, he grows careless or reckless, and when the crucial moment arrives, he loses his head or simply awaits the crash in stupid dismay.

The mere facts that the crossing is a "blind" one, that there is no gate tender and that the locomotive engineer fails to sound his whistle, have no bearing on the contributory negligence of the motorist. Were he to exercise due care, the combined efforts of all these factors could not serve to endanger him in the least. The train cannot leave the track, the crossing is in plain sight, and definitely signalized, and the machine is under control. Hence, every grade crossing accident may, with reasonable margin of fairness, be laid down to a combination of the contributory negligence of the driver, and certain other purely local factors. And, barring a small margin of accidents, pure and simple, few mishaps of this nature are layable to any other cause alone.

But, notwithstanding the dangers of the railway crossing, it is to be remembered that in every sharp turn in the road, and every intersecting road, there is virtually a grade crossing which, with the increasing number of self-propelled vehicles on the highways, is fast becoming as great a menace to safety as the other. With this, the element of uncertainty is even greater than with the railroad crossing, for there is here no guiding rail to direct the opposing traffic, and no schedule of running to be followed. By that very reason, the peril of the cross-roads is even more dubious than that of the railway. It requires greater vigilance and greater caution in handling; it requires better control of the machine, and even more presence of mind in emergency.

Like the other, the highway crossing is beginning to number its accidents already; like it, too, they will continue to mount up as the days go by; and like it, the growth of the list will be a deserving tribute to the carelessness of the average driver. Since these things must occur in the nature of events, however, it does not follow that their consequences must embrace all who motor. For the cautious driver, being forewarned, may take heed, and avoid these dangers with equal diligence. Constant care and attention to the business of driving, are well repaid; and when with them is counted a measure of homely common sense, the danger is reduced to a minimum.

Making Game of the Law.

Seldom have the qualifications of the horse and the automobile as pieces of personal property been differentiated to the extent of saying that what would amount to the theft of one will not in the case of the other. Yet this in effect is the ground of a ruling made by a Cleveland, Ohio, prosecutor when applied to for a warrant of arrest for a man who had taken another's automobile. If a bystander chances to see someone get into a carriage, take up the reins and drive the animal away, it seems he is always willing to go on the stand and swear that he knew the person in question intended to steal the conveyance. But in the case of an automobile, it is quite another matter, according to this same authority for a "prosecuting witness would have to be a mind reader to know whether someone that he sees getting into an automobile and driving away with it intends to steal it or not."

It goes without saying that crime is usually a matter of intent and where an article is taken with no intention of appropriating it permanently, the taker is not punishable for larceny. But intent is seldom, if ever, proved by the testimony of witnesses; it is always to be inferred from the conduct of the accused for "a man is always presumed to intend the reasonable consequences of his acts" and the only reasonable consequence of one man taking another's machine from the curb or other standing place is that he intends to appropriate it to his own use. Of this anyone who sees him do so can testify, and it will be for the "twelve good men and true" to say with what intent he did so. If Cleveland's prosecuting attorney will banish this figment of his imagination temporarily and issue a few warrants for offenders who are caught, he will find that it is just as easy to convict automobile stealers as horse thieves and that a special ordinance to cover this new and unique crime will be totally unnecessary.

Bodies Built "to Measure."

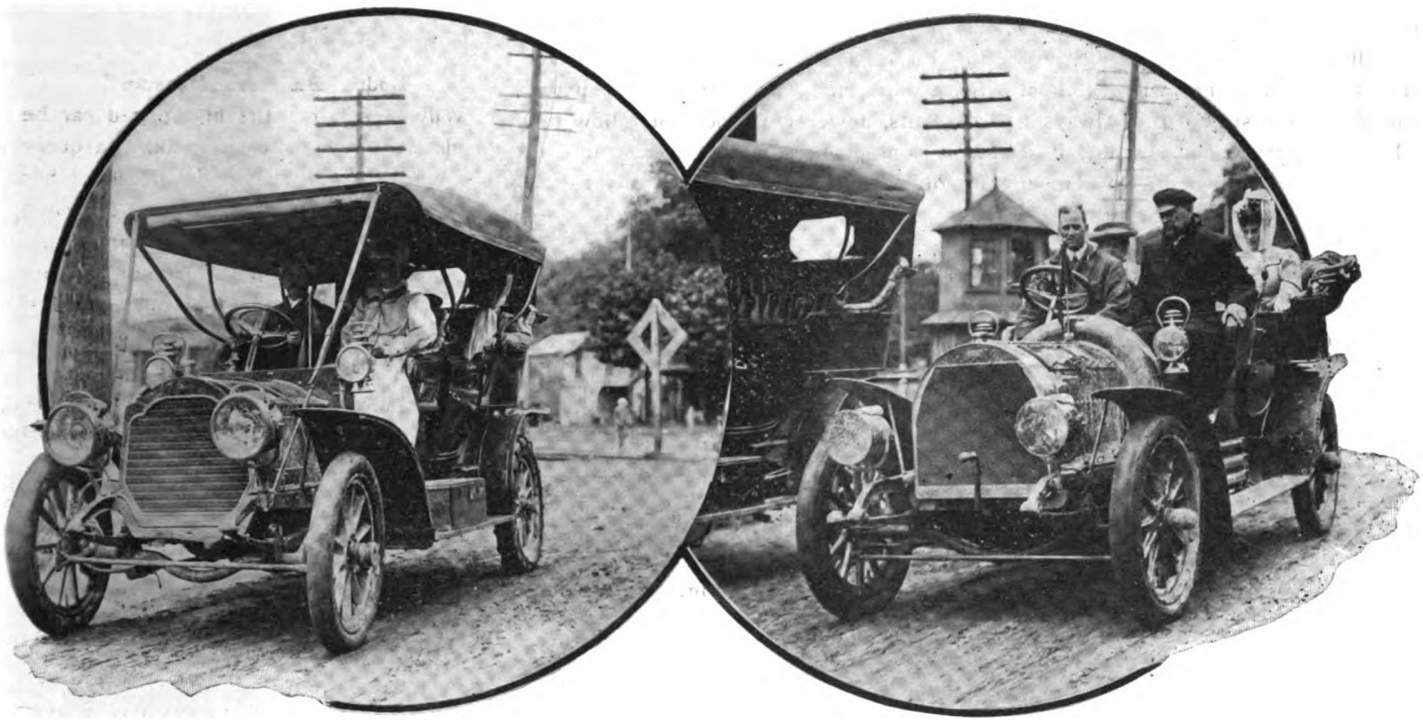
Why should not the high-priced car be made to measure? so to speak, is a query that will naturally suggest itself when other things upon which large sums are expended are taken into consideration. Steam yachts are almost invariably built to the owner's specifications as are houses and a host of other things that are constructed to conform the personal taste of their purchasers. Then why should the man who pays $5,000 or more for an automobile not have it built to measure? for if he is to drive it the length of his reach is of as much importance in operating the clutch and brake pedals as it is that his trousers should be the proper length. Natural limitations confine the space to be devoted to the various pedals, levers and steering wheel to a small area, but like the inch on the end of a man's nose, it is likewise a place where a very little difference is strikingly apparent. The manufacturer has perforce had to strike an average and it is evident that this will be equally uncomfortable for the man who is unusually short or unusually tall.

In other cases the placing of the means of operation has had to conform itself to the remainder of the design of the car and is cramped at the best. Individual taste is always consulted in the matter of finishing the body and fittings of such cars so there seems to be no good reason why the man who is buying such a vehicle and intends to drive it should not be "fitted." A difference of an inch or two in the height or placing of the driving seat or of the pedals and levers with reference to it make for comfort on the long run. In a case where the amount of fitting necessary would be out of the usual, it seems it would also be necessary to hire a chauffeur to fit the car. The question may appear purely academic and needless, but as the bodies of high-priced cars are almost invariably built to order, it would be easy enough to make them "to measure" at the same time.

Wise little British town of Scarborough! It decided not to pass a ten mile speed limit because that would encourage police traps; police traps would scare away the motorists, and the scaring would decrease the profits of the local inn-keepers.

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Best Score Does Not Win Long Island's Economy Test.



S. H. BURNS (PACKARD), 89 CENTS.

A. WILMARTH (ROYAL), $1.16.

THE SUMMARY OF RESULTS:

Car.	H. P.	Owner	Pas.	BROOKLYN-POUGHKEEPSIE Gas. Gal.	Gas. Cost	Oil Qts.	Oil Cost	Total Cost	POUGHKEEPSIE-BROOKLYN Gas. Gal.	Gas. Cost	Oil Qts.	Oil Cost	Total Cost	Cost Mechanical Repairs	TOTAL TRIP Total Cost	Per Capita Cost
Packard	24	S. H. Burns	5	8	$2.00	0	00	$2.00	8	$2.00	3	$0.45	$2.45	None	$4.45	$0.89
Royal	45	Alfred Wilmarth	5	10	2.50	0	00	2.50	12	3.00	2	.30	3.30	None	5.80	1.16
Autocar	24	W. E. Messereau	5	8	2.00	1½	25	2.25	7½	1.87	1	.15	2.02	Puncture and time $1.50	5.77	1.15
Pierce	30	H. F. Lampe	5	11	2.75	0	00	2.75	10	2.50	1	.15	2.65	Repairs $0.60	6.00	1.20
Locomobile	20	V. F. Parker	3	5	1.25	0	00	1.25	10	2.50	1½	.25	2.75	None	4.00	1.33
‖Packard	24	Dr. M. C. B. Parker	4	8	2.00	0	00	2.00	6	1.50	⅞	.14	1.64	Tire repairs $1.35	4.99	1.24
*Zust	50	Raymond Healy	5	12	3.00	0	00	3.00	15	3.75	0	.00	3.75	None	6.75	1.35
*Stevens-Duryea	20	W. T. Wintringham	4	6	1.50	0	00	1.50	6½	1.62	1	.12	1.745	Broken Spring ——	3.24	0.81
*Pierce	45	J. E. Bristol	6	8	2.00	0	00	2.00	8	2.00	½	.08	2.08	None	4.08	0.816
*Frayer-Miller	24	Dr. W. Butler	5	5	1.25	0	00	1.25	4¾	1.18	½	.075	1.255	Mech. adj. Punc. $1.95	4.455	0.89

‖Not competing for prize. *Disqualified.

That traveling by automobile is far cheaper than traveling by railroad has been demonstrated times without number, consequently tests of this character at this time only serve but to emphasize the automobile's efficiency and economy. Nevertheless economy tests are interesting and instructive both to the drivers and to the buying public, the latter to whom the performances of the cars seem little short of marvelous. Therefore, the second annual economy run of the Long Island Automobile Club, from Brooklyn to Poughkeepsie and return, on Saturday and Sunday last, June 14 and 15, served its purpose and served it well.

S. H. Burns, who drove a 24 horsepower Packard, made the run of 171 miles, carrying five passengers, without trouble of any kind. His total cost was for gasolene and lubricating oil, amounting to $4.45, making a per capita cost of 89 cents. The railroad fare per passenger paralleling the routes going and returning, with ferriage, is $3.02. The conclusion is self-evident. Although Burns won the first prize, with a per capita cost of 89 cents, his was not the lowest expense, other cars making better showings being ruled out on technicalities.

Fifteen cars started in the run from the Long Island A. C. Clubhouse, Saturday morning, at different times between nine and ten o'clock. The route on the outward trip was over the Hudson road, via Yonkers and Peekskill, to Poughkeepsie. A heavy rain on Saturday, which the contestants encountered north of Tarrytown, made the going anything but pleasant and the road into Poughkeepsie was covered with several inches of mud. The first contestant to reach Poughkeepsie, the end of the northward journey, was V. E. Parker, 15-20 horsepower Locomobile, who had started from Brooklyn at 9:45 a. m. He registered at the control in Poughkeepsie at five o'clock Saturday afternoon. Clinton B Parker, 24 horsepower Packard, was the second to arrive and these drivers followed him at intervals: Alfred Wilmarth, J. E. Bristol, S. H. Burns, Dr. W. E. Butler, William Wintringham, Fred Lampe, E. W. Messereau and Raymond Healy. All the drivers complained of the roads from Tarrytown to Poughkeepsie.

The return trip from Poughkeepsie along the west side of the Hudson brought hard travel in many places and the roads were even worse than those encountered on the up trip. The first cars were sent off a few minutes past nine o'clock. The route lay to Wappinger Falls and thence to Fishkill Landing where the ferry was taken across the river to Newburg. After leaving the boat the drivers encountered an abrupt climb of about twenty per cent., a test of no mean proportions considering the wretched coating of mud on the roads. From then on the going home was of the tough and go variety—one minute the wheels of the car would hit hard bottom

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and the next instant they would be wallowing in quagmires of cuppy mud and water. Under these conditions it is wonderful that any car finished the journey without breaking some small and fragile parts.

Suffern was the stopping place for lunch. En route to this point Dr. C. B. Parker had trouble with the clutch of his Packard car and also lost some little time repairing a puncture. W. T. Wintringham broke a spring and the cars whose rear tires were not protected by non-skidding devices were badly handicapped by skidding.

On the round trip, S. H. Burns, to whom was accorded first place, used less than sixteen gallons of gasolene and three quarts of lubricating oil. Second prize was awarded to Alfred Wilmarth, president of the Long Island Automobile Club, whose Royal Tourist carried five passengers at a total cost of $5.80, no penalization for mechanical troubles being marked against it.

On account of a technicality in the rules which stated that the owner of a competing car must drive, the 40-45 horsepower Pierce of J. E. Bristol, which made the best per capita showing, was ruled out. Mr. Bristol injured his wrist in cranking his car a few days before the contest and was not able to use his arms. A chauffeur therefore drove the car in the test, and carried six passengers. The journey was made at a cost of 81⅗ cents per passenger.

The 24 horsepower Frayer-Miller, owned by Dr. William Butler, which recently won second place in the two-gallon gasolene test of the Automobile Club of America, went to Poughkeepsie on five gallons of gasolene and used 4¾ gallons coming home. It was unfortunate enough to have two punctures, one occurring just before the car reached the clubhouse on the return trip. Dr. Butler himself did not drive and it was therefore disqualified. Had W. T. Wintringham not broken a spring, which was not repaired, he would probably have won the contest as his Stevens-Duryea made the per capita record, exclusive of the cost of a new spring, of 81 cents. The 50 horsepower Zust, of Raymond Healy, was not driven by the owner, and was consequently disqualified.

Italy's Entries for Vanderbilt Cup.

Nomination by the Automobile Club of Turin of a complete Italian team for the Vanderbilt cup race on October 6, is on the way to this country by mail, according to a cable received this week by E. R. Hollander, who also was apprised that he had been named as the Italian delegate in the Vanderbilt cup commission. The Italian team consists of three F. I. A. T. and two Itala cars; the Fiat cars are 120 horsepower each and the Itala cars 140 horsepower. The drivers of the former will be Lancia, Nazarro and Dr. Weillschott, and of the latter Cagno and Fabry. The Fiat team will leave for America immediately after the Brescia cup race on September 2.

RACED ON BENNINGS TRACK

Famous Horse Racing Course at Capitol Scene of Automobile Sport—The Results.

Famous old Bennings race track at Washington, D. C., where naught but blue-blooded and thoroughbred equines have been allowed admittance to the sacred precincts of its half-mile oval, was on Saturday last, 16th inst., the scene of a real automobile race meet, and the number of spectators—there were several thousand in the grandstands—and the enthusiasm they displayed, showed that not all of the Capitol City's residents are "horsily" inclined. Although but two noted drivers competed in the races, E. C. Bald and Ernest Keeler being the sole out-of-town performers excepting several Baltimore amateur enthusiasts, the card run off by the Washington Automobile Racing Association was exciting and brimful of interest to automobiling Washingtonians.

Perhaps no other race produced more enthusiasm than the three-mile event for gasolene runabouts, albeit there were but three starters. For the first mile John R. Thomas, in a Maxwell, and John Fister, Buick, rode neck and neck. Then Thomas seemed to get into the stride and slowly drew away from the Buick. On the last turn the Maxwell still led but in the dash down the straight Fister, in the Buick, seemed to urge his car a little more and he "flashed under the wire a winner by a nose." (Bennings is a horse track, it must be understood). The time was 5 minutes 20 seconds.

Lewis S. Julian, driving a 16-horsepower Reo, won the three-mile race for gasolene touring cars selling for $1,500 or less, beating out an Auburn car by a narrow margin.

E. C. Bald, Columbia, of course, had a walkover in the race for gasolene touring cars selling at les than $3,000. After a good start and a close race for one mile, the Columbia car driven by Harry Hurst, of Baltimore, was compelled to withdraw owing to a puncture. Soon after the same trouble happened to the Olds of Ernest D. Keeler, who will pilot the Olds in the Vanderbilt elimination trials. This left Bald with the track to himself and he completed the distance in 7:26⅗.

Eight cars entered the free-for-all for the Harris trophy, which was run in three heats. E. C. Bald won the first by a quarter of a mile from F. W. Hack, and Harry Hurst crossed the line before M. Bird in the second heat. Bird, however, who drove a Packard, won the final. For four miles Hurst's Columbia held the lead, when Bird came alongside and the cars kept side by side for the last mile, the Packard coming to the front on the last stretch and winning by a length.

Howard W. Gill, of Baltimore, was prevented from entering on account of a cracked plug but replaced it in time to do an exhibition mile. He covered the distance in 1:13⅕, the fastest mile of the meet.

Percy Smoot, who rode a Peugeot motorcycle, gave the other contestants the benefit of a half-mile start in the three mile race for machines of this class. He was overhauling the other machines when a puncture compelled him to stop. C. C. Campbell, Indian, finished first; M. E. Mangold, Indian, second, with George Hall, Crouch, third. The time was 5:31⅗. The summaries:

Three miles for gasolene stock runabouts—Won by John Fister, 22 horsepower Buick; second, John R. Thomas, 10 horsepower Maxwell; third, George K. Helbert, 10 horsepower Maxwell. Time, 5:20.

Three miles for gasolene touring cars listing at $1,500 and under—Won by Lewis S. Julian, 16 horsepower Reo; second, Auburn car; third, S. L. Harris, 16 horsepower Reo. Time, 5:28⅘.

Five miles for gasolene touring cars listing at $3,000 or under—Won by E. C. Bald, Columbia. Time, 7:26⅗. Also ran—E. D. Keeler, Olds, and Harry Hurst, Columbia.

Five miles, free-for-all—First heat won by E. C. Bald, Columbia; second, F. W. Hack, Peerless. Time, 7:29⅘. Second heat won by Harry Hurst, Columbia; second, M. Bird, Packard. Time, 7:16⅗. Final heat won by M. Bird, 24 horsepower Packard; second, Harry Hurst, Columbia. Time, 7:10⅘.

Five miles for gasolene touring cars listing at $4,500 or less—Won by Harry Hurst, Columbia; second, M. Bird, Packard; third, F. W. Hack, Peerless. Time, 7:12⅘.

Three miles for steam cars—Won by Roland Morgan, Stanley; second, Charles Nance, 15 horsepower White; third, William Engle, Stanley. Time, 5:17.

Three-mile handicap for motorcycles—Won by C. C. Campbell, Indian (½-mile); second, M. E. Mangold, Indian (½-mile); third, George Beal, Crouch (½-mile). Time, 5:51⅗.

New York's Efficiency Test Postponed.

On account of insufficient entries, the New York Motor Club decided at its meeting last Saturday night to postpone its second annual economy run until August 29, 30 and 31. It was scheduled for June 20, 21 and 22. The postponement will not affect the route as first planned—New York to Albany, Albany to Springfield, Mass., and Springfield to New York. Although the club has sought diligently to make the event a national affair, makers and motorists have refused to "warm up" to it.

For an "Anti-Skidding Race."

An "anti-skidding" race is the latest automobile "stunt" fostered in France. Makers of tires and anti-skidding devices will be called upon to pay the piper and provide the fun, as usual. Contrary to custom, neither the French Automobile Club nor one of the Parisian dailies appears to be behind the event. It is said to be in the hands of the Chauffeurs' League.

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GOOD RACING AT ST. LOUIS

Ten Thousand there to See it—Oldfield Wins Free-for-all by Six Inches.

Nearly 10,000 people, in fact, the largest crowd that has witnessed a track automobile race meet this season, enthusiastically applauded the winners and losers alike at the meet of the St. Louis Automobile Club, which was held on the fair grounds track, Saturday afternoon last, 16th inst. Had it not been for several unavoidable delays in sending the cars off their marks in the various events, the meet would have been a glowing success. However, the spectators seemed to realize that the delays were unintentional and took them in good part.

A fifty-mile "endurance run" for fully equipped touring cars was the first event to be disposed of and seven cars faced the starter. They all got off well with the exception of a 24 horsepower Packard, with A. C. Webb at the wheel. Ollie Savin took the lead in a 50 horsepower Thomas, followed by H. S. Turner, in a Pope-Toledo. T. W. Benoist, in a Ford, got away third and the others strung out in the first mile, Webb bringing up in the rear. In the second mile Webb began making up for lost time and at ten miles had worked up to third place, Savin leading him by about a quarter of a mile with Turner in between. The others were well strung out. At the fifteen-mile mark Webb had worked up to second position and with the exception of Turner and W. L. Bagnell, the latter driving a Cadillac, all the other drivers had withdrawn. At twenty miles, Savin still led by about a quarter of a mile, Webb leading turner by a third. The little Cadillac had been lapped a couple of times but was running nicely. The position of the drivers and cars were unchanged at twenty-five miles, but two miles later Turner had to retire, a blownout tire proving his Waterloo. Savin continued to lead in the fortieth mile, but his car was seized with a complication of "motoritis" in the next lap, and Webb, who had ben trailing closely, flanked him on the outside and swung into the pole. Savin stuck to his machine until the forty-seventh mile, with his engine missing fire all the time, but finally dropped out and Webb virtually finished alone, the Cadillac being two miles behind. Webb's victory was a popular one on account of the bad start he got. His time for the fifty miles was covered in the fast time of 1:08:50, which was gravely announced as a world's record.

To fill in the time between the races an exhibition of trick bicycle riding was given but the throng had come to the track to see automobile racing and they soon showed signs of dissatisfaction.

Perhaps the most exciting event of the afternoon was the five-mile free-for-all, in which Oldfield, Coey and Paul Albert-Andsoforth, started. The first heat was between Oldfield and his helper. Oldfield contented himself with trailing Albert until the last turn was rounded when he opened the throttle wide and flashed past him with a whirr, crossing the tape twenty yards ahead. The time was 6:40½. In the next heat the spectators were treated to about as clever a piece of jockeying as has ever been seen in automobile track racing. Oldfield was pitted against C. A. Coey, of Chicago, and his big Thomas racing car. Coey set a good pace and Oldfield trailed as in the race with Albert. When the stretch was reached Oldfield was about twenty yards behind. He opened the Peerless to the limit, but then it apepared that Coey had not been taxing the speed of his machine, for when Oldfield jumped the Chicagoan did likewise. The fight down the stretch was as pretty a battle as one could desire. First the inimitable Barney would get the "Green Dragon's" nose in front a few inches only to be ruthlessly swept back by Thomas's "Tornado." At the tape the cars were so close that many thought it a dead heat. The judges said Oldfield won by six inches. It was what might be termed a hair-splitting automobile race. The time was 5:08.

Four cars lined up for the three-mile race for stock cars listing at $1,000 or under. It was won by J. D. P. Lewis, who steered a Buick around the oval. Ollie Savin, driving an autocar, finished second and H. Stuckuss, Cadillac, was third.

Fred Williams, at the wheel of a Mitchell, won the event for cars selling for $3,000 or less, at three miles. Two Buicks, driven by J. D. P. Lewis and J. Payne, respectively, finished second and third. Time, 4:57.

Seven aspiring riders started in the three-mile motorcycle race, but it developed into a runaway and was therefore uninteresting. Tim Bahnsen, astride an Indian, crossed the tape with half a mile of daylight between his rear wheel and the nearest rider. The time was 4:49. The summaries:

Five miles, free-for-all—First heat won by Barney Oldfield, 60 horsepower Peerless; second, Paul Albert, Etc., Peerless. Time, 6:40½. Second heat and race won by Barney Oldfield; second, C. A. Coey, 60 horsepower Thomas. Time, 5:08.

Fifty miles for fully equipped touring cars—Won by A. C. Webb, 24 horsepower Packard; second, W. F. Bagnel, Cadillac. Times, 10 miles, 13:30; 20 miles, 28:11; 25 miles, 34:24; 50 miles, 1:08:50.

Three miles for fully equipped touring cars listing at $1,000 or under—Won by J D. P. Lewis, Buick; second, Ollie Savin, Autocar; third, H. Stuckuss, Cadillac. Time, 5:18.

Three miles for touring cars selling at $3,000 or less—Won by Fred Williams, Mitchell; second, J. D. P. Lewis, Buick; third, J. Payne, Buick. Time, 4:57.

Three miles for motorcycles—Won by Tim Bahnsen, Indian. Time, 4:49.

VARIED TESTS IN PIZMO RUN

Cups Awarded for Economy and other Things—One Spectacular Accident.

Naturally, after the great San Francisco disaster, automobile events of all sorts in California were relegated to the limbo of things unknown. While the catastrophe did not affect Los Angeles directly, its results, nevertheless, were felt in automobile circles. Dealers were too busily engaged in sending cars to San Francisco, rushing through new orders, and so forth, that they had little time to think of play. The thread having been taken up where it was broken, thirty odd motorists competed in the endurance run and "motor jubilee," which started from Los Angeles on June 7 and ended at Pizmo Beach, with a race on the sands, on June 10. The distance from Los Angeles to Pizmo is 225 miles.

An accident marred the first day's run, when two cars crashed together head on in the steep part of the Casitas Pass, seventy-two miles from the start. Dr. E. R. Hilliker, head control keeper of the run, had trouble with the transmission of his Elmore and stopped for repairs. A car going south bore down on him. It stopped and Hilliker gave the signal to come on, but the driver let it get beyond his control and it crashed into the standing Elmore. Mrs. Hilliker and her baby were badly shaken and Harry Hilliker, who was making the repairs, had to jump backwards down the cliff side to escape injury. He was badly skinned. The machines wedged together, which alone prevented them from falling over the cliff. W. E. Alexander, arriving an hour later in his Pierce, pulled them back on the road. The Elmore's axle was bent and the wheel twisted, while the hood and radiator of the Premier were considerably damaged.

Nearly all the cars reached Santa Barbara, the end of the first day's run, in good shape, although but few came through with perfect scores. A peculiar accident penalized G. W. Sander's Royal. This car had a Yale lock on the gasolene feed pipe and the key breaking off in the lock, could not be extracted. The stump of the key disarranged the wards of the lock by constant joggling and the lock shut off the gasolene little by little. The car limped into Ventura where an attempt was made to remove the lock, but it had been put on to stay and the entire piping had to be replaced, which penalized Sanders's score by 180 points.

The next day's run was to Pizmo, via Naples, Quameda's, Gavoiti, Santa Ynez Mission, Garey, Santa Maria, Arroyo Grande and thence four miles to Pizmo. Not one car finished with a clean bill, L. E. Parker, of Long Beach, driving a 35 horsepower Tourist, lost only six minutes by repairing a punctured tire. He won the trophy, having a perfect mechanical score.

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A. W. Gump's Jackson also had a perfect mechanical score, but lost twenty minutes by puncture. J. W. Wilcox's Maxwell touring car was given third place with a score of 999, it having lost one point in changing gears on a grade.

E. W. Holmes, who drove a 24 horsepower Frayer-Miller, won the cup for the least gasolene consumption. He used only 11¼ gallons from Los Angeles to Pizmo, a remarkable showing considering the nature of the grades encountered.

The economy cup goes to A. W. Gump, Jackson, with a cost per passenger of $1.30 for the run of 225 miles. The Frayer-Miller made the trip at a cost of $1.27 per passenger, but carried five. The initial cost of the machine's time and loss through wear gave the cup to the Jackson.

The race for machines driven over a stretch of road was won by W. E. Alexander, driving a Pierce, with Burr Frayer, Royal, second. The Pierce, carrying full equipment, and handicapped by a top loaded with baggage, made the mile in 1:31. The honors for the record run from Los Angeles and the beach go to E. E. Fuerborn, who drove his Stoddard-Dayton over the 225-mile stretch of varying grades in twelve hours actual running time. He left Los Angeles Friday morning at 7:30 o'clock and reached Pizmo at 10:30 that night, having made the entire trip without an adjustment, the only stops being for lunch and gasolene.

The program concluded on Sunday, the 10th, with a series of races on the beach at Pizmo, and a great crowd of country people witnessed their first automobile races. It is estimated that 3,000 watched the cars frisk up and down the strand, many coming from as far as Paso Robles and Santa Maria. The sand was somewhat damp, which prevented any record breaking performances. The summaries of the beach races follow:

One mile for two-cylinder cars—Won by W. M. Varney, Tourist; second, R. L. Janney, Reo; third, Bruno Siebel, Rambler. Time, 1:45⅕.

One mile for stock cars—Won by L. C. Parker, Tourist; second, George Hart, Pope-Toledo; third, A. W. Alexander, Pierce. Time, 1:34.

One-quarter mile on reverse gear—Won by H. T. Hazard, Pope-Toledo; second, W. M. Varney, Tourist. Time, 1:04.

One mile free-for-all—Won by Harold Stone, Pope-Toledo; second, A. W. Alexander, Pierce; third, E. H. Howes, Frayer-Miller. Time, 1:35.

One mile against time—Harold Stone, Pope-Toledo. First trial, 1.09⅕. Second trial, 1:07.

The Granite State Automobile Club will hold its first hill climbing contest on Saturday afternoon of this week, the scene of the conflict being up the Bridge street hill in Manchester. Seven classes are provided for.

PERFECTING THE DETAILS

Tents, "Floating Hotel," Pathfinding Car and Patrols for Glidden Tour.

Entries for the third annual tour of the American Automobile Association from Chicago to Bretton Woods, N. H., from July 5 to 28, including the contest for the Glidden trophy from Buffalo to Bretton Woods, from July 12 to 28, continue to come in slowly. Last year there were thirty-five contestants in the Glidden tour, but it is estimated that this number will be far exceeded this year. With the entry of Henry Paulman, of the Chicago Automobile Club, of a 40-45 horsepower Pierce car to carry five passengers from Chicago to Bretton Woods, the number now in hand is seventeen.

In answer to several inquiries regarding accommodations on the tour and possible route discomforts on the trip from Buffalo to Bretton Woods, on July 12 to 28, the officials state that arrangements have been made for a reservation of the entire transient accommodations in each place where the tour stops for the night. There is no place on the route where four hundred tourists cannot be comfortably accommodated, and at several points as many as a thousand can be adequately cared for. To accomplish this it has been necessary to arrange for the erection of tents, portable houses, etc., at two points. In Canada arrangements are being made for the chartering of a large St. Lawrence river steamer, which will accompany the tour and be used as a floating hotel.

Regarding possible congestion on the road and the danger of unpleasant dust conditions, members of the party which recently surveyed the road state from Montreal to Bretton Woods there is practically no dust on the roads, on account of the prevailing heavy dews.

On account of the necessity of making the days' runs as nearly equal as possible, the touring committee has decided that the first night's stop from Buffalo shall be at Auburn and the second night's stop at Utica. The most elaborate preparations are being made by the city of Auburn and the Auburn Automobile Club for the entertainment of the tourists, and at Utica there will also be special festivities.

Arrangements are now being made for a path finding car, which will precede the tour by about three days and will thoroughly mark the entire route with arrows or other indicating signs, and will also carry a transportation agent, who will attend to the registration of the members of the party in each town. By these means the tourists, on arrival at each night's stop, will find rooms ready for them.

The committee will also institute a system of checking along the line, checkers being dropped by a patrol car at three points on each day's journey. These checkers will record the time at which each car passes the checking points, the plan being to arrive at conclusions with regard to regularity of running throughout the tour. A second patrol car will follow the last tourist, and will not only pick up the checkers left along the route, but will also act as a relief car, carrying word of breakdowns to the nearest towns, and arranging for spare parts or tows, if there should be any necessity for these.

Extra!! A National Hill-climbing Course.

Worcester, Mass., aspires to greater fame. It desires to locate in "its midst" a "national hill-climbing course." On the outskirts of the city there arises Dead Horse Hill—the scene of an annual climbingfest on the part of automobilists for the past three years. With this as a foundation, the Worcester Automobile Club and some others have started a movement looking to the establishment of a national hill climbing course and for that purpose it is proposed to widen Dead Horse Hill.

Although many members of the Worcester Club are said to look with disfavor upon the continuance of the annual hill climb and the residents along it threaten to sue out injunctions and take other legal proceedings to squelch it, if attempted next year, J. P. Coughlan, the president of the club, has come out strongly in favor of transforming the course into one on which national competitions could be run year after year. F. O. Stanley, maker of the Stanley steamers, is quoted as considering the course the best mile straightaway on an up-grade in the country and is enthusiastic over the project. He suggests that American manufacturers contribute from $100 to $200 each to a fund for the widening and improvement of the road up the hill and to show his sincerity he has offered to contribute personally a sum equal to twice that of the combined contributions of the other makers. This is not the first time the plan of improving the hill for the same purpose has been broached.

Pierce's Accident not so Serious.

Although first cable reports made it appear that Percy Pierce, the young American, had gotten himself in serious trouble with the German authorities, it having been stated that he had collided with a carriage and killed one of its occupants and badly injured another, while returning from the finish of the Herkomer contest at Munich, the latter part of the reports appears to have been unfounded. Pierce yesterday cabled some reassuring news to his father at Buffalo, N. Y. It was brief, to the point and told the whole story. His dispatch read: "Man not dead. Accident caused by farmer who pulled horse to left when too late to avoid collision. Hope to arrange matters to-morrow."

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FIRST MOTOR SPRINKLER

To be Used on Boston's Parkways—Features of the new Vehicle.

Motor driven street sprinkling wagons have been used somewhat extensively in foreign parts during the last year or two and but little here. In Paris, and more recently still, in Rome, gasolene driven machines have been put into service and have accomplished wonderfully good results owing to the certainty and dispatch of their performance, and the readiness with which they can be handled in traffic-ridden thoroughfares. In this country, several municipalities, notably New York and Hartford, Conn., have experimented with electrically driven machines, the latter finally adopting the system. It remained for Boston, however, to inaugurate the first service with gasolene machines, which it accomplished recently by securing an Atlas truck from the Knox Motor Truck Company, of Springfield, Mass., for the use of the Metropolitan Park Commission.



The machine, which comprises a large sprinkler tank mounted on one of the standard three-ton truck chassis, has already been delivered and has shown under test, its capability of performing the work of three to four horse-drawn trucks, sprinkling evenly a street from thirty to thirty-five feet wide. The power plant consists of a 24 horsepower double horizontal motor, sliding gear transmission, spur gear drive to the rear axle, and selective control. According to the distinctive system of the Atlas vehicles, all motive parts are mounted on a massive sub-frame beneath the plane of the chassis, with the moving parts spaced well to the rear, concentrating their vibration on the rear axle, and reducing the losses and defects due to a long transmission line. The wheel base is nine and one-half feet, the tread, fifty-eight inches, and the wheels are shod with seven-inch solid tires behind and five-inch single in front.

Aside from its unique position in being the first gasolene driven watering truck to be used in this country, the vehicle is distinguishable for its solid proportions and the effectiveness of its performance. It is destined to be used by the Park Commission on the Revere Beach Reservation.

That the vehicle will cover much more ground than the horse-drawn sprinklers and in every other way prove more economical almost goes without saying.

Detroit may have Drastic Law.

Assistant Corporation Counsel Hally, of Detroit, has, at the request of the members of the Board of Aldermen, drafted an ordinance to limit the speed of automobiles in that city, which will make motorists "sit up" and take notice. The new ordinance provides that a speed of not more than four miles an hour shall be maintained on any thoroughfare where street railways are operated, within the district bounded by Jefferson avenue, Hastings, Elizabeth, Orchard and Third streets, and upon approaching intersecting streets with street railways, the speed shall be lowered to one mile an hour, while no automobile shall be driven closer than ten feet to a street car which is about to stop to take on or let off passengers. The ordinance is drafted to conform with the State law, and all infractions are to be punishable by a fine not to exceed $500.

Cultivation of the Free Ride.

A man who believes that the best sort of motoring is that which is done at some other's expense and who lives up to his faith, riding far and near, gives this counsel:

"If you want to keep your friends who are automobilists you must learn enough about the practical side of the question to talk automobile with a show of intelligence and enthusiasm and practice learning first your friend's views of certain cars before expressing your own, in order to reassure him of his knowledge. Always remember Artemus Ward's policy toward a man looking for advice. He first found out what sort of advice was wanted and then gave it, with the result that the visitor departed convinced that he and Artemus Ward were the two wisest men in the world. When a friend asks for an opinion of his new car it is certain he is looking for praise and not information. I always speak slowly and critically in such cases and assure the man that he has bought the very best car to be had for the money. I have done a great deal of automobiling in the last two or three years, and the fact that I do not own a car makes no difference in my popularity; yet I am not regarded as a sponge, but only as a poor enthusiast. My enthusiasm costs less than lubricating oil and smoothes the works quite as well."

The Worst of all Drivers.

"Yes, automobiles are a bit dangerous at street crossings," said the traffic policeman, "but the biggest is not to be compared for danger to the drunken driver, driving a felt shod horse, harnessed to a rubber tired hansom, with the lights out. Even the quietest automobiles make some noise, but the combination I have just named gives the pedestrian no warning whatever. There are more narrow escapes from horse propelled vehicles on Broadway than from automobiles. Of course, when an automobile knocks a man down the papers make a sensation of it, but five men are hurt by horse drawn vehicles to one by the horseless kind."

Hotel Arrivals' Latest Style.

The automobile has brought with it a new job for the "hotel arrival" scribe of the daily press. Instead of reporting Mr. and Mrs. Bland de Blank, valet, maid and pup, as having arrived at some swell hostelry, he now indites something like the following: "Mr. and Mrs. Sykes and the Misses Sykes, of Newhurst, in a 60 horsepower Goit, from Albany to New York, at the Soakem." Thus, the make of the car and the party's starting place and destination have been rung in to help fill this column. A New York daily that is owned by an expatriated American now makes a specialty of this form of notice. A good press agent would ring in the tires used, too.

Club Formed in Cohoes.

Twenty automobile owners of Cohoes, N. Y., have formed the Cohoes Automobile Club, which will become affiliated with the New York State Automobile Association and the American Automobile Association. These officers were elected: President, James H. Mitchell; vice-president, J. Henry Williams; treasurer, Grank P. Gardiner; secretary, E. A. Clifton.

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IGNITION WITHOUT A SPARK

Vexatious Trouble that Occasionally Occurs and the Most Probable Causes.

When a motor continues to run after shutting off the current to the coils, it is a symptom that indicates but one thing—preignition, and as in other ailments, the progress of the disease will be apparent from the character of the symptom. If the motor gives but one or two jerky explosions after the switch has been thrown to the off position or the plug has been extracted, the disease is yet young and may be cured without resort to measures that will be necessary later on if not taken at the outset. If the motor continues to run for quite a space of time, say two or three minutes, and does so regularly after the current has been switched off, the case is apparently an aggravated one and can only be the result of a combination of three things. Continued running with an overrich mixture, excessive amount of lubricating oil or a hot engine. And when this has continued long enough to bring about such results there is but one alternative—to tear down the engine and give the piston head, the cylinder walls above the piston's range of travel and the edges and protruding parts of the valve chambers a thorough cleaning.

This indicates preignition, pure and simple, which is seldom caused by anything other than an accumulation of carbon. Removing the latter by taking out the piston and giving it and the combustion chamber a thorough cleaning generally proves all that is required, but when after having once gone through the time and patience consuming process of tearing the engine down and putting it together again, the trouble still continues, the motorist may be excused for finding himself in somewhat of a quandary, as does the one who makes the following inquiry:

"I have recently put a new 12 horsepower two-cylinder horizontal engine in my car and it works alright except that as soon as it becomes a little bit warmed up, say, after a run of not more than half a mile, it will continue to fire a number of times after the switch is turned off," writes a sufferer to the Motor World. "I have ample radiation and the circulation is good. The water never boils. The pistons have been cleaned as have the cylinders also. Is it possible that there is a portion of the water jacket or water space that has not been opened or cleaned out by the makers? Can you or some of your readers help me out?"

Diagnosing cases at long range is not profitable business usually except for patent medicine fakirs who have one remedy whatever the disease. If the ailments of a motor could be permanently cured with the same facility that the seller of nostrums guarantees to heal anything and everything from the mumps to consumption with one or two bottles of his magic restorative at so much per, it would be all very easy. When these self-styled healers invite the suffering to describe their symptoms, they do not care a continental what the latter may be, as the same stuff will be prescribed in every case. But symptoms appear totally different to the sufferer himself and to the skilled physician, so where the diagnosis must be made at a distance, the sufferer's description of the ailment must be taken as perfectly true in every detail. In the present instance, as it is stated that the engine was only recently installed in the car, it seems highly improbable that there should be any necessity for cleaning the pistons and cylinders after having run the car but a short time, unless there had been gross carelessness in using the lubricating oil, or a very poor grade of oil which readily burnt into carbon the moment it got into the cylinder, had been employed.

Whether this was so or not cannot be stated, but at best it is unlikely. That the engine fires a number of times after the switch is turned off must naturally be accepted as a fact for upon that hinges the entire matter, as must also that regarding ample radiation and good circulation. The fact that the water never boils may be significant in a way in which is has not been regarded by the possessor of the car. If the water never boils, not hardly ever—but never, it may be an indication of the fact that the water is not reaching a spot that would cause it to boil when the engine was run hard, as there are very few engines that will not cause the water to boil if run under adverse circumstances for a sufficient length of time. Almost any car of the double cylinder opposed type will warm sufficiently to set the water boiling if it be run up a steep hill on the low gear in warm weather, or, for that matter, if it be compelled to run very long on the low gear on the level.

Some proportion of a very large batch of castings turned out in even the best conducted of foundries is apt to be defective. It may be very small, indeed—sometimes, every casting of a lot may look perfect and yet contain defective specimens. Castings are tested in some shops, both before and after machining, in others only before or after they have been bored. The metal that is cut away in the latter process may render the test before machining useless by weakening the walls sufficiently to give way when tested afterward, though still to all appearances perfect, so that testing both before and after the machining is the only safe way. Even where the latter is practiced, a defective casting may be permitted at times to pass as O. K., and in the present instance the inquirer's surmise that the makers may have overlooked the cleaning out of a part of the water jacket space may have some foundation. This may be the case and a good circulation of water still result, as the latter may not be impeded but only prevented from reaching a certain part of the cylinder. If the latter be around the combustion chamber, the cylinder will soon become hot enough at that point to fire the charge without the assistance of the electric spark once the engine becomes warmed up a bit.. No possible amount of radiation or water circulation will help matters unless the water comes in contact with the spot where it is most needed.

If the jackets be entirely free and clear—something that is probably difficult to ascertain to a certainty without removing the engine from the car altogether, there may be other causes of a similar nature at the root of the trouble. It must be borne in mind that the combustion chamber and valve pockets are not finished. With the exception of the good offices of the sand blast in removing any dirt adhering from the process of casting and hand chipping out any portions that protrude unduly, the metal is more or less rough and may have been left with a small projection extending above the surface in such a position as to be readily heated by the explosion or by the exhaust gases. In two-cycle engines, a deflector or baffle plate is cast integral with the pistons. It extends across the top of the latter and its office is to deflect the incoming charge upward so that it will not mix with the exploded charge which is being exhausted at the opposite side of the cylinder at the same time. In early models it was quite a common fault of the two-cycle engine for the edge of this baffle plate to become incandescent and cause preignition. The same conditions concur in the four-cycle engine when there is a projecting piece of metal extending into any part of the combustion chamber that may thus become heated.

Only examination of the interior of the cylinders will suffice to show whether this is the cause and in this connection, the statement of the sufferer that the pistons and cylinders have been thoroughly cleaned and that nothing responsible for this result has been overlooked must be taken as true. Lack of knowledge of all the circumstances surrounding the case make it more or less difficult to do anything more than treat it in a general manner. Taking it for granted, however, that the trouble appeared very soon after the engine was used for the first time—in other words, that it fell a victim to preignition a short time after being brand new, there seems to be no alternative but to ascribe it to a defect of the kind mentioned. That is, either an obstructed water jacket or a piece of metal projecting into the combustion chamber.

Sold Six Cars to Six Clergymen.

"We think this is somewhat in the nature of a record," says a foreign firm, in commenting on the performance of one of its local agents in disposing of six cars to six clergymen. All the dominies lived in the same district and all the cars were sold within a short time, so the record looks as if it might have been the result of an epidemic.

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DUSTLESS ROADS OF FRANCE

Tarring Process that Lays the Dust and the Apparatus that is Employed.

Aside from the problem of securing good roads, which is all-essential to the motorist, the most important phase of the entire consideration of the highway is that of maintaining the road surface in an even and uniform condition throughout the year. In this, as in the matter of the basic construction of the road itself, it would seem that France has again taken the lead through the use of the tarring process. First to take up the method of oiling to allay dust, France was naturally in a position to discover first of all, its weaknesses, and to cast about for some more lasting system whereby the desired conditions might be retained. The result has been a prolonged trial of the tar coating with gratifying results as stated recently in the Motor World.



THE TAR BOILER AND TARRING CART.

Like the heavy oil at first used in a somewhat similar manner, the tar mingles with the outer layer or roof of the road to form an impervious waterproofing, free from all loose particles and not as easily abraded as the plain gravel of the macadam alone. But, unlike it, it undergoes a certain amount of change, drying into the gravel dust, and forming a sort of asphalt which in time becomes very hard and smooth, and, by that very fact, less affected either by weather or traffic conditions. Being worked into the surface by means of weighted brushes, it sets to a depth of several inches, according to local conditions and the exact nature of the treatment, and amalgamating with the loose material, is rolled and compacted into a homogeneous state, finally solidfying to a degree, and remaining thereafter intact, but for the effect of wear.

Naturally enough, the entire virtue of the process lies more in the method of application than in the nature of the material itself. For up to within a comparatively short time, although the benefits of tarring were recognized, its application met with but little success, comparatively speaking, owing, first of all, to the fact that it was not properly blended with the road covering, and, second, to the fact that it was an expensive and difficult matter to spread it in a heated condition with the appliances then in use. To M. J. Lassailly is due the credit of introducing a scientific and practical method of laying, which is at once efficacious and inexpensive, and which, by these facts, served to reintroduce the principle of tarring, which had languished, owing to inadequate methods of handling.



A STRETCH OF TARRED ROAD.

The Lassailly apparatus, as shown in the accompanying illustrations, is composed of four different organs, namely, the tar holder, into which the raw material is dumped from barrels, where it is melted and conveyed to a regulating vat, in which a constant level is maintained, and a uniform consistency, through the administration of even heat. From the vat, the tar is passed to a tank wagon which is equipped with sprinklers capable of distributing it in a layer of uniform thickness. As it is laid down, it is worked into the surface by a series of brushes, the fourth link in the chain, which serve to mix it with and work it into the dust and earth of the coating, to the required depth.

In this apparatus, the tar is heated to about 100 degrees Centigrade, a steam boiler being utilized for the purpose, and about a ton of material being handled at one time. As taken by the sprinkler, it retains sufficient heat to last until an entire charge has been laid, its very heated condition serving to drive out a percentage of the moisture in the road and thereby aid in the amalgamation of the surface layer to the desired texture. The heating plant is portable, being moved along from time to time, as the work progresses so that at no time is the heated tar carried far before being spread, and by this means, the entire apparatus travels along with the work, eliminating long hauls and obviating the necessity of change of base, which formerly was necessary. Under normal conditions, the apparatus is capable of laying something like 3,000 square yards per hour, the reducer taking care of 2,400 kilograms, or about 2½ tons of tar in the same length of time.

Not simply does the tarring of the surface

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reduce the amount of dust raised by passing traffic, but at the same time, it reduces the abrasion which that involves, thus preventing the grinding up of the harder particles into fine powder, and its removal by mechanical action and wind. Thus, the nuisance of the dust is got rid of, the road surface is improved for a period lasting throughout a single season at the very least, and the destruction of the outer material is prevented, forming a triple advantage which is not to be found in any other method of treatment.

Time to "Dismount."

Among the errors, always more or less numerous, that creep into technical and quasi technical descriptions, principally the latter, though they are not wholly to blame, none seems to have taken such firm hold as the use of the word dissemble. Whether it be Webster, the Century or any other authority that is resorted to, the signification of the word is found to be totally foreign to the sense in which is is thus employed. It has no connection whatever with the idea of disassembling—an awkward sounding compound for which it is evidently used, for to dissemble always has meant to deceive and if the hundred and one scribes who have launched forth into the domain of automobile technicalities will "dismount" instead of dissemble they will not be deceiving themselves or their readers into a belief that their knowledge of the subject under review is any greater than that of English.

Small Boy's Safety Device.

To prevent skidding and provide an emergency brake which will brake at all times and in either direction, a small boy has recently secured protection on a device which contemplates the dropping of a pair of heavy drag shoes beneath the rear of the car, through the action of a lever. When fully applied, these shoes even go to the extent of lifting the car bodily from the road and taking the load from the drivers. Apart from its evident success in accomplishing the desired end, this appears to be somewhat on a par with the invention of a little Dutch girl within a few months, which involved the portage of a small turntable in the machine to provide a means of turning in narrow quarters.

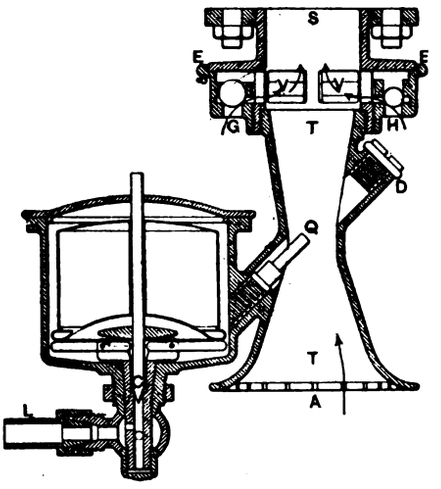
Y. M. C. A. Opens Summer School.

So great has been the demand for automobile instruction in the school conducted by the West Side branch of the Young Men's Christian Association, in West Fifty-seventh street, New York City, that it has been decided to keep the school and garage open during the greater part of the summer. The fifth class of the year, which will be the summer class, began its sessions a few weeks ago, and the work will not be completed until August 1. On account of examinations and the finishing of more or less delinquent work, the school probably will be kept open until August 10.

NEW TYPE OF AIR INLET

Involves Novel use of Air Check Valves—How it Operates.

A novel arrangement of the auxiliary air inlet in carburetter design, and one free from many of the drawbacks attendant upon certain of the types in present use, is developed in the case of the new G & A carburetter, of the Grouvelle & Arquembourg mark, of France. Without springs and minus the external attachments which mark most other types of the springless variety, it is calculated, in theory, at least,



to meet all the requirements of rapidly altering service. The method of regulation comprises a series of ball check valves of varying size so arranged that they will be lifted by the force of the suction in number and proportion to the degree of pressure exerted upon them by the outer air, thereby admitting it in varying quantities.

An annular ring surrounds the upper portion of the mixing chamber into which are taken passages leading to a trough in which are the balls. Each ball rests over a hole admitting air to the mixing tube when raised, but normally sealing the inlet. As the balls are of varying size, their different weights cause them to lift in succession as the atmospheric depression within increases, until the required amount of diluting air has been admitted to the intake pipe. The mixing chamber is of the double cone type, with a single jet placed at the narrowest diameter, and at an angle to the direction of flow of the main air intake. This arrangement insures a constant draught upon the float chamber, and hence, a constant lift of the fuel.

As shown sectionally in the illustration, the jet is seen in the centre of the mixing chamber T, which leads to the engine through the portion S, into which the air of dilution is drawn through the several ports V. An annular ring E surrounding this portion of the device contains the balls G-H, which are of graded size and lie over openings below which they seal when in their pormal position. As the draught of the motor increases, it causes the displacement of one and another of the balls, the lightest rising first and the heavier ones following, until the engine speed has become constant and the extra air admission adequate.

For this apparatus it is claimed that there is no clogging action of the extra inlet, no tendency to become disordered through the weakening or breaking of springs or any affection of the parts. The only two forces concerned with the operation, are, it is claimed, that of gravity, acting on the balls, and that of the suction from the motor, these two, being constant and independent of the position and performance of the car. But despite the apparent efficacy of the arrangement, it would seem that the jolting of the machine when on the road must have a certain amount of disturbing effect on the balls, either causing them to dance about, or sensibly varying their pressure against their seats, thereby causing a variation in the regulation. Just how far this difficulty has been overcome, and how does not appear, but, at all events, the design is sufficiently novel to be worthy of consideration.

"Non-Stop" Test of Carburetter.

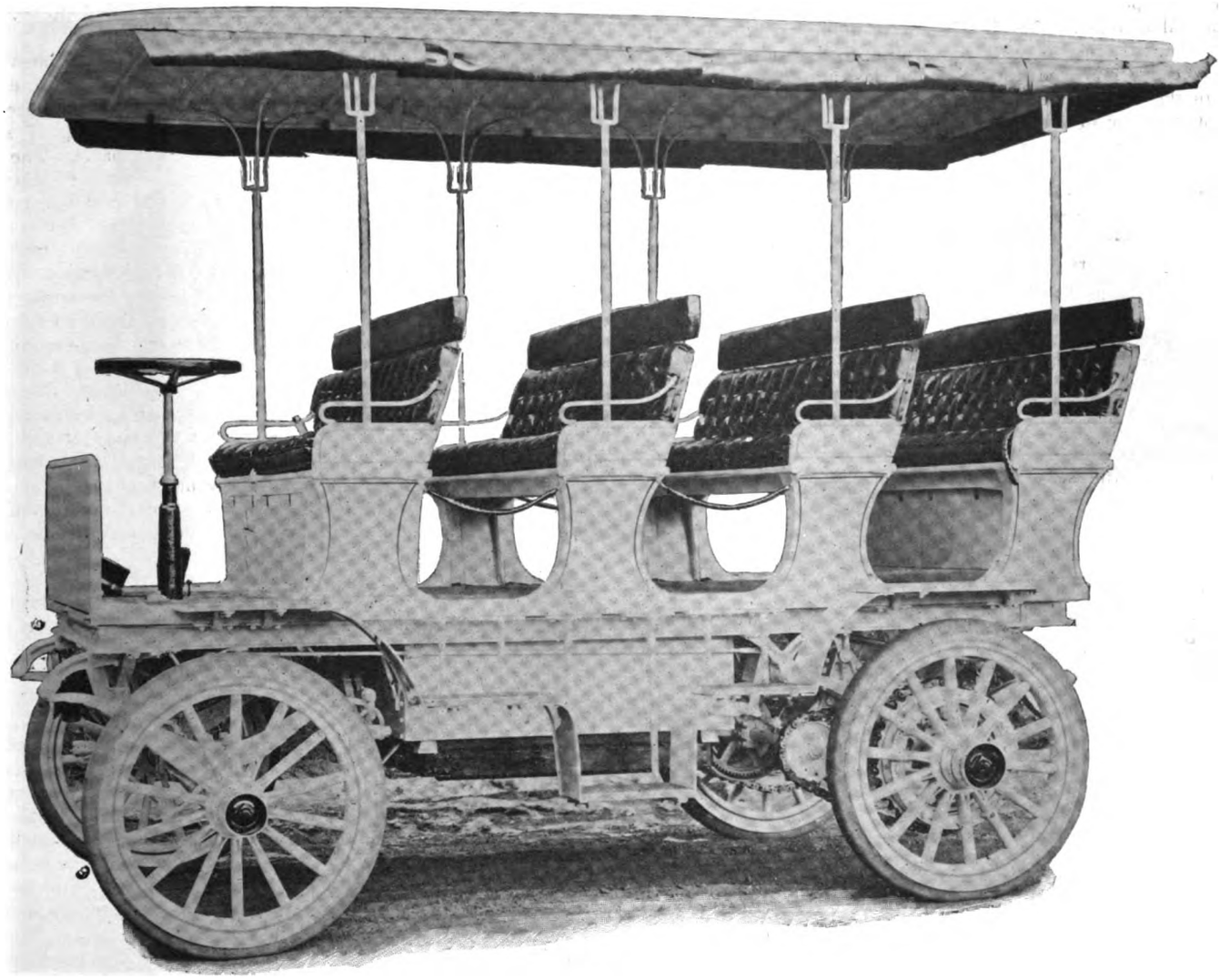
One of the most interesting "non-stop trials" that has recently come to light was concluded a few days ago in the testing department of the Electric Vehicle Company, at Hartford. A new form of carburetter had been designed at the suggestion of a customer who proposed touring in a country where gasolene costs more by the quart than it does by the gallon in this country. This particular device was really a combination of two carburetters, one of which was connected to the governor and requires an almost infinitesimal amount of gasolene, while the other uses fuel in the usual quantity. The mechanism is so arranged that either one or the other may be used according to the manner in which the operator actuates the foot or hand throttle control levers. In trying out this carburetter, one of the 40-45 horsepower Columbia motors was alternately run on the block three hours light and three hours connected to an electric generator and was kept going continuously for three weeks day and night. Then it was taken down and installed in a car.

Houpt will Try Again for Cup.

Harry S. Houpt, the New York City agent for the Thomas car, evidently is convinced that a "square deal" policy will this year be adhered to in making the selection of an American team for the Vanderbilt cup race in October. Proof of this was given this week, when it was announced from the office of Jefferson de Mont Thompson, chairman of the American Automobile Association's racing board, that an entry had been received from Harry S. Houpt for the elimination race. Mr. Houpt's entry is for a 120 horsepower Thomas and a check for $1,000 accompanied the entry.

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For the Use of Hotel Guests.



COLUMBIA ELECTRIC BRAKE DESIGNED FOR A CLEVELAND HOTEL.

Wherein Repair Shops are Lacking.

It appears to be one of the anomalies of the business that not one in a hundred of even the best equipped repair shops maintained by the largest garages in the country makes any provision for attending to the running gear of the car. This is readily explained on the ground that as the wheels are usually the last thing on the vehicle to need attention, except in cases of serious accident there has been no demand whatever for repairs of this kind. As the life of a car in its original owner's hands seldom averages more than three years at most and as a very great many cars end their days altogether in the same period, it is nothing strange that the wheels should not call for attention in that time.

This was true to a greater extent in the early days of automobiling when there were comparatively few cars in use, but now when the number running daily mounts into thousands in every large city, the time seems about ripe for the addition of a wheelwright's department to the up-to-date repair shop. As at present run, the motorist finds himself compelled to resort either to the local wheelwright, whose experience has been confined entirely to the horse-drawn vehicle, or has the one alternative of sending a damaged wheel to the factory, which means a long delay during which the car must be out of use. A new wheel will remedy the difficulty at once, it is true, but where one or two spokes are merely at fault, it is a very expensive method of making them good and frequently the factory must be called upon to supply the replacement anyway, as some of the so-called stocks of parts carried by branch houses are such only in name and cannot supply many other things of far less importance than a wheel.

Consul-General Washington, of Cape Town, reports that the idea of using motor wagon trains seems to be growing in favor in South Africa. He adds that the field is one worthy of the attention of American manufacturers.

Damage Done by Serrated Tools.

Among the tools being placed on the market especially for automobile use are a number of combined wrenches and pliers, the majority of which have serrated jaws. There is no doubt that such apliances are handy and at times serve the purpose desired where few other tools could be used conveniently, but it is none the less a fact that nuts and bolts soon give evidence of their continued use and a car upon which they have been employed to any extent presents a shabby appearance owing to the nicked and cut up appearance of these small parts. The same thing applies to the more or less general use of a pipe wrench. With its spring controlled jaws it is a tool that will hold anything and the tighter it grips the more apparent will be its trail. After a season's use there will hardly be anything removable on the car that will not show traces of this form of abuse. The moral is to stick to the S-wrench and the spanners, if you have any great regard for the appearance of your car.

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CONCERNING COMPRESSION

Some Factors not Generally Understood—Effect of High Altitudes.

It is sometimes a difficult matter for the beginner to appreciate the office of the compression stroke of the engine or realize its importance, and this is something that bothered early gas engine designers. Some of the first gas engines did not explode the fuel under compression and it is to be feared that if improvement had not been forthcoming in this respect, the internal combustion engine would have long since been relegated to the limbo that holds numerous attempts at the construction of prime movers. In these early non-compression engines, the charge was drawn in during the first half of the outward stroke. The inlet valve then closed and the charge was fired, exerting its expansive effort against the piston during the remainder of the stroke. The exhaust took place on the up-stroke, just as usual. There was thus no idle stroke, but the percentage of heat units in the gas that were thus utilized was very small.

In order to obtain the maximum amount of useful work from a given quantity of gas, the greatest amount of heat must be utilized and but a minimum permitted to pass into the cylinder walls, jacket, piston and exhaust. Consequently, the amount of radiating surface with which the hot gas is permitted to come in contact must be reduced to a minimum. Hence, a great deal of heat was lost in the old type of engine because the amount of surface thus exposed was comparatively large. The cause of a still greater loss of efficiency in the old type of engine was the very low temperature at which the charge was exploded. The initial temperature of the charge fired under compression is very high, though it drops rapidly with but a small movement of the piston on its downward stroke. This minimizes heat losses in the jacket while the far more complete and rapid combustion of the compressed charge as compared with that not under compression prevents loss in the exhaust.

Probably the greatest advantage following upon the adoption of a design which permitted of an entire stroke being used to draw fuel into the engine and another stroke to compress it before explosion was the startling difference in the fuel consumption. With the non-compression type the proper mixture was found to be 17 parts of gas to 100 parts of air, while under compression, but 8 to 10 parts of gas to 100 of air are employed, thus cutting the amount required practically in half. Theoretically, at least, it would appear that the only necessity for greater power would be increased compression, but in practice so many factors enter to qualify this that the subject is one requiring considerable study and the standard of 60 to 90 pounds now generally followed by designers of automobile motors has only been arrived at after considerable experimenting.

With increased compression comes the liability to leakage at the valves and round the piston, difficulty in ignition, starting and lubrication and difficulty in running the engine at low speed, while the stress to which all the parts are subjected is correspondingly increased as is also the weight of the flywheel. Last, but not least, there is the danger of self-ignition to be guarded against, the compression at which various fuels will ignite spontaneously differing widely, but being comparatively low in the case of a mixture of gasolene vapor and air. That the increase in in power is not proportionate to the rise in the compression was illustrated by experiments made with a standard four-cylinder motor of the usual type. At 60 pounds to the square inch, it developed 20.8 brake horsepower on a consumption of 22 cubic feet of gas per brake horsepower, while an increase of 50 per cent. in the compression, or to 90 pounds, only produced 24 horsepower, reducing the fuel consumption at the same time to 20.75 cubic feet of gas per brake horsepower hour. The engine speed in both cases was the same.

But high compression is by no means synonymous with good compression and poor compression is the chief cause of an engine failing to maintain its power, for a leak means the loss of a portion of the charge on the compression stroke and the escape of some of the exploded gases through channels not intended for them. A fact that is probably not realized by the great majority of motorists is that compression is dependent upon atmospheric conditions and altitude. This means that there is a slight falling off in compression and consequently in power for every 1,000 feet the car ascends above the sea level. Except in mountainous regions this is practically a negligible factor as there are scarcely any altitudes in this country attempted by motorists that would be sufficient to cause a loss of 10 per cent. in the compression, though this would be enough to make a difference in the power developed.

Replacing the Tire Lugs.

It is most annoying when making a tire repair on the road to be delayed two or three minutes after the new tube is in place by the necessity of replacing the caps on the lug screws. On this account the novice is apt to neglect it, reasoning that the "things were only meant for ornament anyway." But as a matter of fact, they play a most important part in protecting the tire from dust, sealing the opening between the hole in the felly and the flat sides of the lug stems, and thus keeping out a larger quantity of dust and mud which otherwise would soon accumulate there in considerable quantities.

SPARK PLUG VAGARY

Ingenious Roadside Repair Brought it About—Spark made Long Jump.

Usually, the broken spark plug is considered as final when the motorist is on the road and without spares, but from the following, it would appear that in certain cases, a sort of temporary expedient might be resorted to which would at least serve to tide over a few miles.

It is related that a driver on an unfrequented road, discovered on trying to start after a short stop, that a spark plug which previously had been behaving perfectly, was absolutely useless, and as his motor was of the single cylinder variety, and he without extra plugs, he was at a loss to know how to get on. Taking out the offending member, however, he found that the solid terminal wire in the body of the plug had broken off and disappeared leaving the spark to jump from the insulated post to the outer side. Theorizing that as it had been acting properly for some time, to all intents and purposes, and as the wire probably had been missing for a considerable time, the spark must have been making the long jump invariably when under compression, he proceeded to discover a method of getting a start with the idea that the same process might be continued.

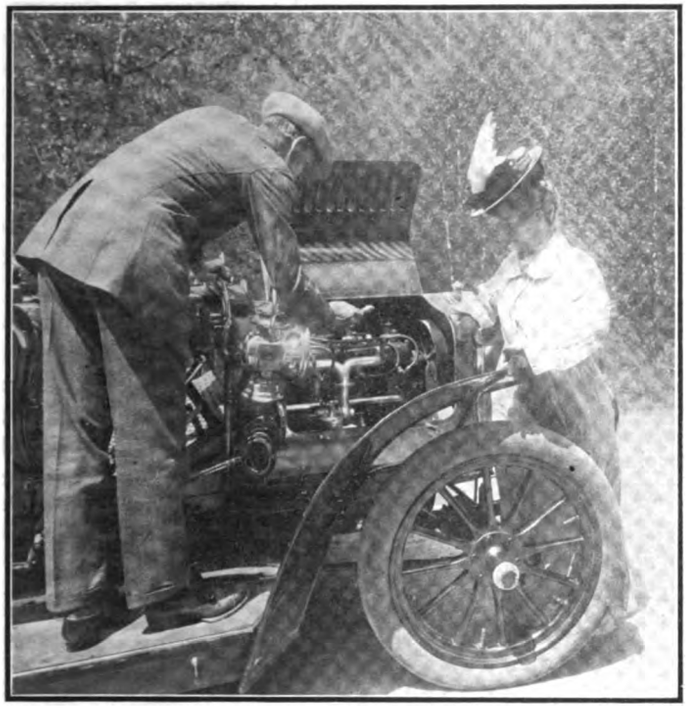
With this in mind, he cut out a bit of tin which he bent double and slipped in between the porcelain and metal body, thus forming an artificial gap of less resistance than that which existed without the regular terminal, and probably less resistant than the normal arrangement. As he expected, the motor started on the "first half turn," and continued to run irreproachably until he reached his destination. When there, however, he took out the plug again, and was surprised to find that the bit of tin also was missing, so that apparently, the plug had been sparking, at least for a portion of the trip, without any relief from the long gap between the post and the body.

Two Steering Gears in One.

With an idea of increasing the certainty of the steering mechanism and also to safeguard it against disablement on the road, a Continental engineer has just brought out a patent upon a duplicateed worm and segment arrangement which is essentially two steering gears in one. Two worms are fixed to the steering column, one above the other, while the segments meshing with each are fast to a pair of independent rocker arms, each being linked to the knuckles in the usual manner. By this means in the event of injury to one set, the other will still remain active, at least in theory, and still serves to guide the car, while the lost motion due to wear may be taken up by adjusting the distance between the two rocker arms in their attachment to the connecting rod. Duplicate drag links also are indicated in the specifications.

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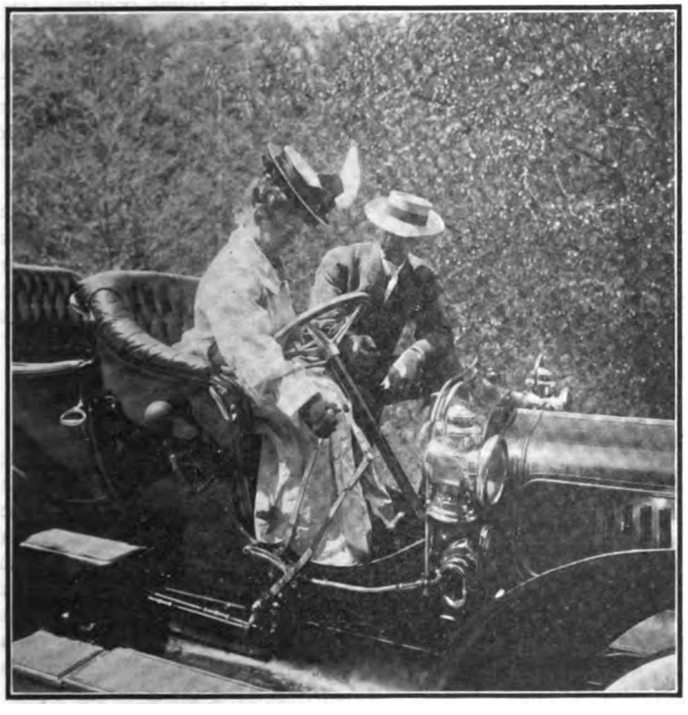
Giving My Lady a Few Lessons.



SHE LEARNS SOMETHING ABOUT THE SPARK PLUG.



THEN GIVES THE CRANK A TWIRL.



THROWS IN THE FIRST SPEED.



LETS IN THE CLUTCH—AND MOVES.

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THE MAN WITH THE MATCH

Two Instances which Illustrate the Extent of his Amazing Thoughtlessness.

Hay wagons, furniture vans and occasionally trolley cars take fire and furnish a free display of pyrotechnics that may be viewed by the populace with safety, but the frequency with which the automobile assumes the same role is conclusive evidence that people are far too careless in their handling of matches or a naked flame in any form while in close proximity to gasolene. Hundreds of instances could be cited and in practically every one it is the same old story of playing with fire, but two that have come to light within a day or so of one another though a thousand miles apart form a sufficient illustration of the need of care, and as both were attended by circumstances slightly out of the ordinary, they are excellent examples of what extremes of carelessness is at times displayed.

As a specimen of utter disregard of cause and possible effect, one that hails from Paducah, Ky., is probably without equal. The driver, who was also the owner, was out with his fair charmer and the ride was long. The engine began to labor and the car was brought to a standstill for investigation. No result was forthcoming when an attempt to restart was made and an examination of the gasolene tank followed. There was no response when the pet cock was opened and in order to see if it were plugged with dirt, the trouble-hunter made use of the first thing available—a sulphur match. With that utter nonchalance that distinguishes the hero in the face of danger, he thrust the business end of it into the pet cock and rubbed it up and down briskly to clear any obstruction that might be there. When he withdrew it the match burst into flame and so did the stream of gasolene that followed it. After having watched the painful scene until nothing but the smoking ruins remained, the pair walked to the nearest railroad station and returned in less merry mood than they had started.

The other case happened in New York City and was of a totally different character. The car had come to a standstill and half an hour's patient search on the part of its driver had failed to reveal the cause. From out of the increasing crowd of curious lookers-on that invariably grace such a scene, stepped the man who "knew it all." He did not know what the trouble was, but he got down under the car and lighted a match to find it. His experienced eye detected nothing amiss and he dropped the blazing match on the pavement in a small pool of lubricating oil and gasolene that thad dripped there. Then he faded quickly into the dark unknown. The spectators tried to push the car away from the blaze, but it was too late and by the time the fire department got through with it there was about as much left of the car as is usual under such circumstances. It is merely a question whether it would be more profitable to consign the remains to the junk heap than attempt to repair them. These are but two instances of many occurrences of the kind that should not be. They not only deprive the owner of his property needlessly, but tend to exaggerate the dangers of gasolene unduly in the minds of the unthinking.

Bar Harbor is Again Disturbed.

Whether automobiles will be allowed within the sacred confines of Bar Harbor this summer is a question that now is agitating the natives and the colonists who are wondering whether or not they will be allowed to take their cars with them when they go to the resort for the summer. The agitation has been perennial, but what was supposed to have been the final attempt wac made last summer to settle the question, when the local liverymen, whose business multiplies tenfold when automobiles are barred, succeeded in keeping the "offending" machines out of Bar Harbor.

Now the question has been revived and a house to house canvass has resulted in a vote of 400 to 2 in favor of barring automobiles. Motorists attempted to get a bill through the town council allowing automobiles the use of Bar Harbor's streets, but failed. To test the question two motorcycles were ridden through the streets recently, which looks like a strong entering wedge. Although there were complaints, no arrests were made, the judge refusing to issue warrants on a technicality. Because of this the summer colony are hopeful of getting a favorable automobile measure passed by the selectmen.

Big Reward for Alcohol Processes.

Despite the numerous rewards which have been offered in France for the discovery and successful application of some method of denaturing alcohol, the common and general use of denatured spirits still remains largely in prospect there. In the hope of advancing the cause, however, the Minister of Finance, has recently arranged for two new prizes to be gained in competition, the one of $4,000 for the development of a denaturizer more satisfactory than any yet employed, and the other for the evolution of a method of using alcohol in the same manner as kerosene for illuminating purposes. The second prize amounts to $10,000. The second offer seems rather remarkable in the light of the fact that alcohol even now is utilized in the production of an incandescent light from a mantle, which is far superior to that obtained from a simple wick and flame.

A touring race in which speed will be the governing factor, is to be promoted in France next year under the patronage of the widely known Baron de Caters. It will be a counterpart of the Italian Targa Florio, recently held in Sicily, so it is said.

HERE'S A THIEVES' PARADISE

Cleveland Ruling that Makes "Borrowing" of Cars a Safe and Agreeable Pastime.

According to the prosecuting attorney of Cleveland, Ohio, John Doe can take Richard Roe's automobile wherever he happens to find it; he may use it for his own pleasure or profit and provided always that he returns it without having done any damage to it, there is no law under which he may be prosecuted.

This unique ruling is the outgrowth of an arrest by two of Cleveland's bicycle squad of one Roy Brown, for wrongfully appropriating the automobile of H. S. Avery, of the same city. The machine was taken from the baseball grounds on the outskirts of the city and driven about until its sole occupant fell into the hands of the police for reckless speeding in the crowded streets. Upon learning the circumstances the policemen making the capture applied for a warrant of arrest upon which the driver might be held on a charge of having stolen the machine.

"If the machine were a horse we could issue the papers, but as it is, we are helpless," said the city prosecutor. "The police are powerless as there is no law under which these would-be automobile drivers can be held, except for an out and out theft where there was no intention of returning the machine. It is next to impossible for the police to prove that a man who leaps into an automobile and drives away intends to steal the vehicle. A prosecuting witness would have to be a mind reader." As a result it is the intention of the official in question to attempt to burden the statute books of the city with a special ordinance covering this particular and peculiar crime.

If this were to be taken as a precedent it would be necessary to have a special law to cover the theft of a sewing machine, or an ice box or any other chattel. According to this ruling anyone may appropriate such an article and unless a witness who sees him do so can swear that he knew the act was performed with malice aforethought and intent to steal, the taker is not guilty of larceny.

Long Beach to Make a Bid.

Another beach has been discovered. Summer residents of Long Beach, L. I., claim that the south shore sands are just as good for automobile speeding as those on the Jersey coast, and consequently the automobile owners at the summer resort are trying to work up sufficient interest to form an automobile club and hold races on the beach throughout the season. In fact, plans are being formulated for a beach meet on July 4th, Colonel A. E. Dick, one of the motoring colonists, having offered a silver cup for a free-for-all race on that date.

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WHAT HE FINDS FAULT WITH

Veteran Motorist Relates Experiences and Suggests Some Improvements.

"I have always had a good word for the two-cylinder horizontal opposed type of car and I firmly believe it is a type that will endure, although my confidence in it as an all round service vehicle has been shaken recently," said a motorist who has probably purchased more cars in the past ten years than almost any three others combined. "My experience dates back to 1896 when Charles E. Duryea was one of the very few, if not the only man, in the country, marketing a car," he continued in recounting his trials and tribulations to a Motor World man the other day.

"You see here," he said, indicating the contents of a spick and span private garage that would do credit to the establishment of a multi-millionaire, "I am not prejudiced and my opinion of the two-cylinder car is not the outgrowth of the use of that type alone. In the ten years that I have been buying and using cars I have invested in a great many of them and I think I have run the whole range of types, both steam and gasolene." On the cement floor in an orderly row against the wall, were no less than eight touring cars, principally of the best American makes and almost half of them of the present year's model, each reposing under an enshrouding cover that protected its varnish and brass. In front of a bench was the chassis of a well-known French car, reduced to its lowest terms and on which two men were working. .In an adjoining room a well-known two-cylinder car of American make with a limousine body was being washed and groomed so that the exhibits certainly bore out his statements.

"No, I don't favor the horizontal opposed type for every kind of service, and an experience I had down in the backwoods of Long Island last Sunday weakened my support of the type to some extent. I have always contended that it is mere useless extravagance to keep a heavy four-cylinder car just to run around the city or a good roads country with and I think I'm right. The big four-cylinder car is out of place for such service. Of course, there can be no comparison between any commercial interest and the automobile for pleasure purposes, but using one of these ponderous touring cars of 40 or more horsepower just to do cab duty strikes me about the same as putting a hundred-ton high-speed locomotive on a local train that stops every mile and a half. There isn't a two-cylinder car that can't exceed the legal speed limit two or three times over, so that there can be no question of speed. It's a mighty dangerous thing to go rushing about the city or even in the near suburbs much faster than the law allows and it's to a man's own interest to drive carefully, so there can be absolutely no necessity of any more speed.

"Now that car there is good for 30 miles an hour on anything like a fair road," pointing to the two-cylinder limousine being washed, "and on a smooth pavement in the city you can get 35 to 38 miles an hour. That's considerably more than three times the speed limit and as to the 'excess power' reason that so many put forward when this subject comes up, why there is hardly a hill within 15 miles radius that that car will not take on the high gear.

"But there is one thing about this type of car that will have to be improved before it will be all that it should and that is making it more accessible. Yes, I know there are several makers who have adopted the plan of placing the engine forward under the bonnet with a shaft drive," he replied to an interruption conveying this information, "but I have never invested in one of them. This is a first rate car I have here and while it represents a tremendous improvement over those great big two-cylinder cars of three or four years ago that were absolutely ungetatable without removing the body and using a pit in addition, there is still a great of room for improvement. The floor boards are removable and all that, but demonstrating the accessibility of one of these cars at the show and actually reaching those same parts when you want to do something to them on the road are two widely differing matters. A shaft drive on such a light car presents no objection whatever so that cannot be the reason. It costs considerably more than a single chain. That may be it, but whatever the cause is, the engine is not in the proper place slung under the center of the body.

"No, I have never had that car brought to my attention," he replied to a query as to the practice of hinging the entire body at the rear and making provision for lifting it readily, which is carired out on an American car of the two-cylinder type. "But why should a man be compelled to dump his passengers out as well as any baggage he may have in the tonneau and lift two or three hundred pounds of body when he could do the same thing by raising a few pounds of bonnet. It strikes me as a queer way of beating the devil round the stump and is only a recognition of the fact that lifting the floor boards does not provide sufficient access. Even when they are of the very simplest nature, road repairs often entail a great deal of trouble and time and nothing complicates them to such an extent as being unable to get at the part you wish to work on. I can recall a great many instances where it would have been only a matter of fifteen minutes to effect the repair and be under way again if there had been any way of getting at the part.

"On one occasion I was delayed four hours all on account of replacing a miserable foot or two of hose pipe forming the connections between the tank and the radiator. I had given orders to renew that piece of pipe fully two weeks previous and though there are three men to do nothing else but keep the cars in order, they usually manage to overlook something or other of that kind. Well, they paid dearly for it that time alright. We were out in the country in a rather hilly district and as we were slowly climbing a pretty stiff grade on the low there was an ominous 'plunk' and a gush of hot water on the road as that piece of hose burst. The system was pretty well drained before the water could be shut off and that didn't help matters any because we had to refill the tank, at least partly, anyway, before we could start up again when the repair was made.

"After I had vented my spleen on the driver for having been so careless as to overlook the repair, he set to work. Luckily for him the replacement had been cut to length and stowed in the tool box, otherwise he would have had to forage for a piece of garden hose. I was taking the car out to my country place and had two of the men with me. While one of them was busy at the repair I sent the other one to carry water from the nearest house in order to refill the tank. It was a quarter mile walk on an indifferent road and water is not light, so he suffered for the sins of the other fellow. When I saw where that new piece of hose had to be placed, it was not difficult to understand why the driver had been putting off the evil day—he had been waiting for the time to come when he should feel like tackling such a discouraging looking job, I suppose. The radiator is up in front, as usual, and though it is an awkward matter to make the joint at the bottom, it presents no great difficulty. But that after joint to the tank! The man who placed it in that position ought to be compelled to make that joint with everything in place and the body on. Once would be sufficient to cure him of ever again designing such a combination of inaccessibility.

"The tank is supported on a platform bolted to the side member of the frame and its inside just clears the flywheel of the engine. The front seats of the car cover it completely and to cap the climax, the battery box is made fast to the frame, just six inches in front of it. The cold-water outlet is at the bottom of the tank and faces forward. From there the hose pipe went downward beneath the battery box, snaked its way between the car frame and the engine frame through a space that would only admit the coupling on the end after a great deal of juggling and persuasion and so to the radiator. Getting the old couplings off was certainly a mean job but it was simply not in the same class with getting the new piece in place. Those men toiled and sweated, one on his back in the road and the other working from above. They barked their knuckles and wore out their patience but still they could not start that coupling on the end of the piece sticking out from the tank. Instead of being horizontal as it should be, it had an upward

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tilt of a full quarter inch and it was next to impossible under such difficulties to so manipulate that stiff piece of armored hose so as to bring the two in line and there are few things more exasperating than trying to start a thread when you can't get the two parts in the proper plane, both horizontally and vertically. After every five or ten minutes of continued effort they would be on the verge of despair and would take a spell to look things over. They studied the thing pretty closely, I can tell you, but the only thing that wasn't rivetted in place was the battery box and finally after much trouble they loosened it, only to find out that it was not removable without first taking off the body. Its extreme range of movement was about six inches forward but that was a great aid and after many more tries at it, they finally got that coupling to take hold and screwed it tight with much thanksgiving. The job should not have taken more than fifteen minutes at the outside, but it consumed almost four hours and those men were completely worn out.

"Oh, to get back to my recent disillusioning where the two-cylinder car is concerned, I had the same car down on Long Island last Sunday and it has always been my boast that there wasn't anything within fifty miles of New York to stop her in the way of hills or bad roads, but she met her match on some of those bad roads. With the exception of being badly rutted in places, they are, on the whole, pretty fair and if it were not for the way that they snake through the woods and their narrowness, would make good traveling. But just about once in so often there is a veritable 'slough of despond'—a sand hole and these spots almost invariably occur on the hills. Loose. shifting sand anywhere from six to ten inches deep is about the most severe test that a car can be put to, but when an up-grade is combined with it, there could hardly be anything worse. We just managed to pull through the first two, but the next one caught us fair in the middle of it and even with the engine racing itself off its bed, we couldn't budge the car forward or back.

"Tightening the gear a bit and with everyone but the driver putting his shoulder against the wheel, resulted in one or two violent jerks ahead that made the car burrow deeper and then stalled the engine. Successive attempts made her settle so deeply that we finally gave it up until with the assistance of a shovel and some planks borrowed from a farmer we made a way out of it for the drivers. We encountered several other places of the same kind but took good care to run the car on the solid ground at the side of the road. The sand is so loose and shifting that it piles up in front of the wheels and makes it necessary to use the power to run down hill. Fortunately, such places are rare and are becoming more and more so with the advance of road improvement, so that even this experience should not weaken my faith in the two-cylinder car as the best for all except long distance touring service."

The Line of "Mortal Pressure."

Another "discovery" is being credited to one of the shortcomings of the automobile —that of occasionally failing to stop in season to avoid running over what thus remains in its path. A young child was recently the victim of such an accident in New York, and though knocked down and run over by a delivery wagon weighing two tons, escaped without other than trivial injury. Taking this as his cue, a physician has discovered that there must be "a line of mortal pressure." If anyone who is about to be run over by an automobile will so adjust himself that the wheels will avoid his "line of mortal pressure' he will escape unscathed as did the child in question. But this is not all; the line is a movable article and depends on various factors, the sum total of which is somewhat akin to a horsepower rating formula, for, says its creator, its location "depends upon the weight and speed of the vehicle, the width and elasticity of the tires, the condition of the ground, the clothing of the victim, the mechanical resistance of the bones, the contraction of the muscles," and a few others not of sufficient importance to mention.

Theorizing as to narrow escapes from death in cases of accident soon lands the spinner of such webs far beyond his depth in the realms of chance. Whether it be at the hands of an automobile driver or in whatever way death may come, men will continue to yield up the ghost as the result of the most trivial of mishaps, while others will escape unscathed from the very jaws of death. The why and wherefore of these eccentricities of fate can never be established on the "line of mortal pressure" theory, even in accidents where pressure snuffs out the vital spark or misses it by the fraction of an inch. At best, the basis of this ingenious, theorizing M. D.'s is so vague and dependent upon such numerous factors that after attempting to apply them all to a particular case, the only possible conclusion would be that the lucky one who so miraculously escaped must have left his "line" at home on that occasion.

Why Osaka is Objecting.

Osaka, in the "Land of the Rising Sun," has a problem on its hands. Ever since Osaka was, the jinrickisha has been its citizens' chief mode of conveyance, as it has that of all good Japanese up to very recent times. But modernity has swooped down upon the town in the shape of the automobile and the electric railway. That is, the automobile got there first and now the trolley wants to get in, too. Justus Briggs, an American, is manager of the Osaka Automobile Co., and has been using the car as a public service vehicle. Experiments made with six White steamers have proved so successful that the companies operating the "rickshas" have attempted to have the automobiles barred from the streets altogether, and the city authorities have held up the granting of a franchise for a trolley road until the advantages of the automobile can be demonstrated when a larger number of cars, which have been ordered, are in use.

Incrustation in the Radiator.

Incrustation of the inner walls of the tubes of the radiator is rare, owing to the fact that no deposit takes place unless the water boils and in order that the former should be at all appreciable, it is necessary for the cooling water to be at the boiling point continuously. This, of course, does not apply to the cylinder jackets which frequently reach even higher temperatures.

Where boiling does occur continuously and there is no stoppage in the various parts of the system such as in the pump and the various connections leading to and from it, this is an indication that the radiator is too small. Where the only water obtainable holds a large quantity of mineral matter in solution, such as lime, more or less of a deposit is apt to form in spite of the greatest care. As a preventative of this nothing equals rainwater and as a cure, if the disease has not progressed too far, a weak solution of hydrochloric acid and water will prove a loosener. Every part of the system should be thoroughly flushed out with two or three charges of fresh water after its application, as the acid, though weak, will attack the metal and cause serious corrosion in time.

Small Things that Require Replacing.

Avoid the day of reckoning by replacing that worn out piece of hose in the cooling system. Appearances are mighty deceptive and it may last indefinitely—so long that it may not give up the ghost until the next man owns the car when there will no longer be reason to fear it. Still, it may give out to-morrow and the same thing applies to that piece of wire in the high tension circuit which has been twisted back and forth until it may snap at any moment. Besides, it is oil soaked and the insulation is rotting. The replacement of these small items not only keeps a car in good running order but keeps it looking so, as well.

How Bombay has "Come on."

Two years ago, motor cars were a rare sight in Bombay, but to-day, they are so common as to excite no comment when seen on the streets. Indeed, it is the optimistic statement of Sir Lawrence Jennings, chief justice of Bombay, and president of the Motor Union of western India, that: "Pleasure cars are to be numbered by the hundred; the automobile in commerce has made its appearance, and it may be that the future will see the establishment in Bombay of motor industries."

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SHORTAGE OF ALUMINUM

Outlook Abroad Reported to be Serious—Inferior Alloys Likely to Result.

Just now the bulk of the British industry seems to be threatened with an aluminum famine which has already asserted itself to such an extent that the makers have been forced to look abroad to a certain extent for the raw material, and which promises to seriously interfere with production especially in the case of firms which have not been forehanded with their stock orders. So far as is apparent, the only present effect which is at all wide spread is in the increase in price of the pure metal, and the consequent increase in the amount of inferior alloy which is being foisted upon the market.

As to the actual conditions as they exist at the present time, it is said upon good authority that one of the largest manufacturers in the country has already had to import considerable quantities of aluminum from France, Germany, Belgium and Austria, in order to keep going, while two well known founders in the Midland district have been forced to shut down temporarily more than once for lack of stock, and are at the present time straining every nerve to secure new alloys and substitute metals which can be used instead of aluminum.

The cause of the shortage is variously attributed to one and another condition, but a conservative organ of the trade seriously ascribes it principally to the great demand upon the world's reserve on account of the manufacture of war stores, in part brought about by the Russo-Japanese war, together with the rapidly increasing demands of the motor car makers themselves. Still another and more logical reason given, is the failure of the water supply at Loch Foyers in the smelting region last summer, which somewhat curtailed the original production.

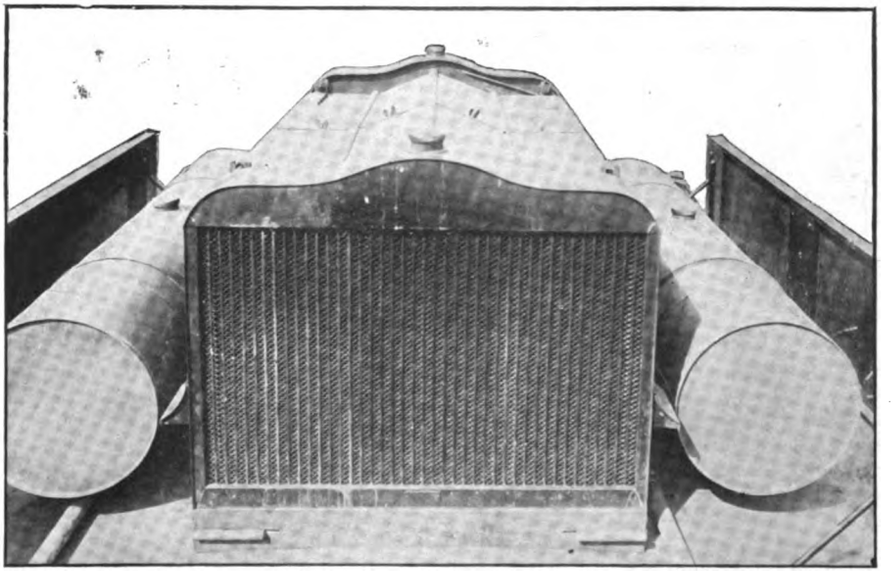
When the extent of the use of the metal in motor car construction is considered, and the amount of dependence which is placed upon it, the effect of such a shortage upon the making of timely deliveries is rather dubious in prospect. But, on the other hand, as all the larger producers place their contracts and take delivery of material in the late winter and early spring, it would appear that the trouble zone must be limited to the lesser lights for the most part, and that by the beginning of another season of manufacture the shortage will have passed. Nevertheless, the outlook is referred to as "serious."

Tests with the Pet Cock.

Frequently the results obtained by testing the action of a gasolene engine cylinder by opening the pet cock while running, are deceptive, owing to the influx of air through the opening and consequent alteration of the mixture. In a special device recently brought out in England for the purpose, a ball check is introduced into the body of the valve, thus preventing the induction of air, while in no wise interfering with the exit of the gasses. By a simple construction, the valve is made non-operative by giving the handle a quarter-turn, thus allowing the use of the cock for the introduction of gasolene through it, on occasion.

Tanks and Radiators on the Roof.

One of the most striking examples of "finding room" for the various parts of the power plant shown in the accompanying photograph. It illustrates the cooling system of the six-cylinder 75 horsepower engine forming the power plant of the portable charging station housed in the ponderous 12-ton 'bus built by the New York Transportation Co. for this purpose. Two stock bonnet-end radiators as ordinarily fitted to touring cars, have been taken and owing to lack of other available space as well as the fact that the maximum cooling effects thus obtained, they have been placed on the roof, facing in opposite directions. This brings them directly over the engine itself so that the necessary connections with the water jackets are both short and simple, beside being all in sight. On either side of this cooling plant are located the fuel tanks.



Ignition terminals have a most mysterious habit of becoming loosened without apparent provocation, and those which lead to the commutator occasionally become partially fractured within the coating of insulation thereby lessening their efficiency. These things will bear watching.

When flexible rubber tubing, such as commonly is used in forming water connections, manifests a tendency to kink, the simple expedient of winding it tightly with copper wire will serve to stiffen it to a sufficient degree to prevent further trouble.

PORTUGAL'S BIG PURCHASE

Varied Lot of Heavy Steam Vehicles for Use in West Africa.

A consignment of steam motor vehicles including four 5-ton wagons, eight 3-ton trailers, and a 3,300 pound van, has recently been received by the Portugese government for use in expedition work in West Africa. The motor wagons have platform bodies adapted to carry heavy loads, and the power plants consist of vertical central fired water-tube boilers, adapted to burn wood or coal as occasion demands, and compound motors of 45 horsepower. All working parts are fully enclosed, and the machines are adapted to withstand the most severe usage.

Two of the wagon bodies are removable and may be replaced by a special type of ambulance body, capable of accommodating eight patients. The latter are mounted on a novel form of compensating spring suspension invented for the purpose and adapted to the great unevenness of mountain passes and new laid roads. The lighter vehicle is adapted to the use of the officers, and is equipped as a living car for day and night use. It is rubber tired, and is capable of making an average speed of fifteen miles an hour. Like the other machines, it has a vertical water-tube boiler, and is fitted with a 25 horsepower compound engine. The order was taken from a British firm.

Hard Grease as a Lubricant.

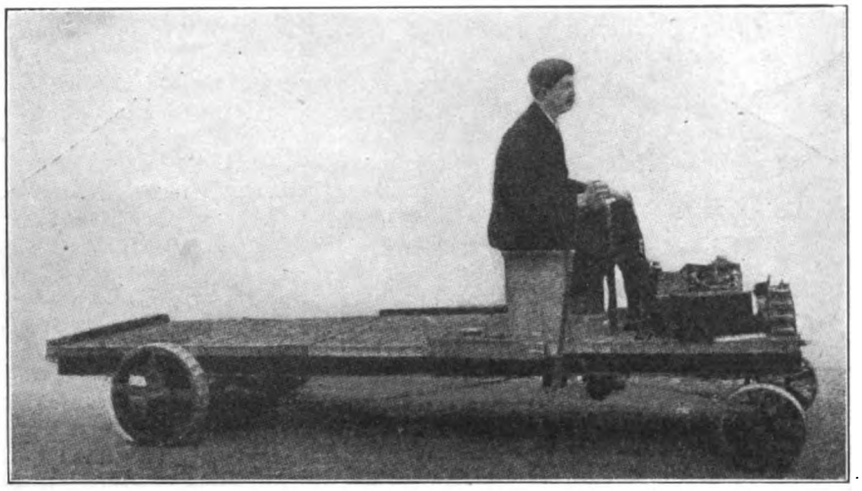
It is an indubitable fact that the efficiency of lubrication by means of hard grease fed through compression cups is considerably impaired if the grease is allowed to stand for any length of time in uncovered cans, exposed to dust and dirt, or if it is packed into the cups with a dirty chip picked up from the road.

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TRUCK FOR SHOP USE

Convenient and Readily made Vehicle that Saves Much Time and Labor.

"Moving day" in a factory is probably one of the most trying periods imaginable and the difficulties incidental to the transportation of heavy and bulky machines for even comparatively short distances are productive of muscular weariness and clumsy mishap more than equalling that of several years of ordinary wear and tear. The greatest difficulty encountered always is that of skidding the loads up to the platforms of ordinary road trucks, and in this respect, it is evident that were it possible to employ a low-hung vehicle, either small wheeled, or else built upon the "jigger" principle, a great saving would be accomplished. The accompanying illustration shows a low truck built for moving day struggles by a British firm, which, besides being convenient and fully up to the demands made upon it, was constructed almost entirely of stock parts used in the regular production of the works, and hence, was of ridiculously low cost to its makers.



As will be seen, it was driven by a small gasolene motor mounted in front with radiator and tanks handy to it. The transmission was of the sliding gear type, giving three speeds, and in conjunction with a special reduction through the driving mechanism, made possible six changes of gear. The drive to the wheels was through a train of spur gears to the live rear axle, one wheel only being made solid. The other wheel was pinned to the axle, and by the withdrawal of the pin, could be freed when turns had to be made. In this way the use of a differential and, incidentally, the expense of constructing a special axle, was obviated. Small iron wheels were used, those in the rear hardly coming above the level of the platform, and the front pair were mounted on a solid axle which was swiveled to the under side of the platform. Steering was accomplished by a couple of cables leading to a drum beneath the floor and connecting with the steering wheel by a worm gear reduction.

Although the top speed was geared to about five miles an hour, it is said that this crude appearing little machine was able to carry almost any load which could be placed upon it at that rate, and even traveled considerable distances over a somewhat hilly road, carrying over two tons of burden. Whatever may have been the utility of this particular truck under the special circumstances which gave it birth, it is evident that a similar construction might be employed to advantage in many large plants where the great amount of shifting of stock from shop to shop is now done by means of hand-drawn trucks, at considerable expense of labor. The cost and nature of the construction being slight and its applications varied, it would seem that its principle might readily be applied with profit in many instances.

Why Thin Oil is Used.

A comment on the carelessness of the average paid driver and the degree of safeguard which should be thrown around machines, especially those of the commercial type, which are constantly to be under the hands of such operatives, is given in the statement of an official in a company operating a very large number of omnibusses abroad that he now uses thin lubricating oil exclusively on all parts of the machines where it is practicable. Accounting for this, he says, that pressure fed lubricators choke up rapidly, and the drivers, where mechanically fed lubrication is employed, fail to watch the sight-feed glasses. Thick grease fails of its best purpose through the carelessness of the drivers in applying it with dirty hands and pieces of wood picked up in the street, while, as a rule, they forget to turn down the screw caps. Thin oil, he finds, accomplishes practically the same purpose, and under the circumstances is a more certain method of lubrication.

WHAT THE SWISS WANT

American Makers Refused to Supply it—Present Types and Prices not Favored.

From Geneva, American Consul F. B. Keene, writing of the exposition of cycles, automobiles and motor boats, held there in April, deplores the lack of American representation in Switzerland. Apparently the efforts already made to capture trade there have not met with signal triumph, owing to a poor choice in the types of vehicles imported.

"One thing is certain," says Consul Keene, "Switzerland wants good strong machines." Discussing the situation more fully, he continues: "It is to be regretted that the only American factory which was represented in Geneva now has no active agent here. A member of the Swiss Automobile Club and the old agent of that American company both told me that the American automobile in question did not meet the good, strong, reliable, and enduring requirements demanded for this country. The American article, he said, was too light and too wide, it got out of order very soon, was somewhat too expensive for a voiturette for two persons ($810.60), has a shape which did not please the European eye, and has no direction wheel, he said. Applications to the manufacturers to change the width of their cars, to lower their export price, or to deliver framework alone without carriage work were unsuccessful. When one thinks that, besides the strong type of 6 horsepower runabout described further, French voiturettes, two seats, are sold here from $436.20 up, it is no wonder that only one American machine of the above-described type has been sold in Geneva. A light (two seats) runabout, with a 6 horsepower motor, capable of running at 24 miles an hour on flat roads and ascending 15 per cent. gradients, is sold here at $752.70, all important parts coming mostly from France and all tools and accessories included in the price. A six months' guaranty is given against defective parts; delivery three weeks after order."

Combining Gear Change and Clutch.

Considerable newspaper stir is being created on the Continent at the present time over the recent production by a titled youth of a compound gear shifting lever which combines the functions of gear-changing and clutch manipulation. The mechanism, involves the use of a jointed lever arm, which, moving as a unit through a portion of its travel, effects the changes in the usual manner, through the gridiron segment and selective mechanism. At the end of its travel in either direction, the main lever no longer moving, the upper portion which is jointed to it, continues to move, thereby engaging the clutch through a somewhat complicated train of linkage.

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RELIEVING THE CLUTCH

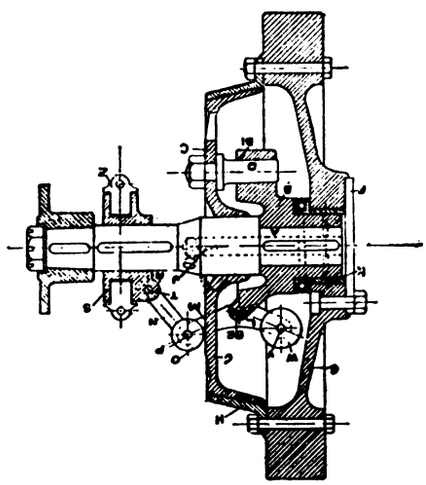
How it is Accomplished in a Foreign Device—Evil of the Thrust Strains.

One of the drawbacks which has interfered with the efficient action of the friction clutch in all its forms up to the present time has been the great amount of thrust occasioned by the crowding together forcibly of the driving and driven members, usually brought about by spring tension, and causing during the periods of declutching, great strains which have to be borne by the mechanism. Frequently these thrusts have been taken up by ball bearings, thus largely removing the element of friction, but even where this has been done, the unavoidable thrust has made necessary a degree of care in design, and has been productive of an amount of mishap in actual practice which otherwise might be regarded as wholly needless. To eliminate these strains and remove from the mechanism all stresses other than those due simply to the torque of the motor, is a matter which is deserving of the attention of every designer.

An attempt to secure this desideratum has been made by the delineator of the Champion metal-to-metal cone clutch, here illustrated, which, aside from this feature, is distinctly commonplace. As will be seen from the cut, it is of the simple inverted type, the driving ring being formed as a part of the motor flywheel. The driving force is transmitted from the follower ring C to an internal spider B, keyed to the driven shaft A, by means of a trio of dogs, D, which allow for a certain amount of relative translation between the two elements. The spring tension, which is at once the essential and the detriment of the mechanism, is obtained from three spiral springs mounted on suitable studs between the driving arms, and not shown in the section here presented. The declutching action, on the other hand, is obtained through the medium of a toggle joint construction involving the links N and M, which are pinned to the controlling yoke S and the internal spider B, respectively, and are joined together at the point P.

The movement of the yoke toward the clutch serves to "break" the links, in the manner in which a jack knife is folded, thus bringing a series of rollers O, mounted at the joint of the links, into contact with the surface of the driven member C through slots in which they pass. This action serves to disengage the driving and driven members and throw the mechanism out of engagement. But at the same time, it is apparent that the short links which are in compression are being swung more and more into a plane at right angles to that of the driving shaft, and that on this account the tension which they carry is being transferred from the yoke S and the ball thrust at K, to the linkage itself and the shaft A upon which it rides and which turns with it. Thus in proportion to the motion of disengagement, the strain is removed from the mechanism and its external coordinate parts, and becomes wholly self-contained.

The advantages of this result are perfectly apparent, for not simply is it made possible for the operator to hold out the clutch indefinitely without fatigue, but also, at the instant of the freedom of the following member is made complete, all external thrusts are removed from it, and it is allowed to turn or become stationary as the case may be, entirely independent of the rest of the mechanism. Thus, the operation of changing gears is facilitated, the



friction of the transmission when idle is reduced, and what is still more important, the danger of cramping the parts already under stress through the distortion of the machine is removed to a remote possibility. The thrust evil is one which exists even in the modern type of disc clutch, and is one, moreover, which must be overcome before complete satisfaction can be secured from the performance of the car. This particular method of eliminating it, may not be the most desirable in some respects, notably in regard to the amount of mechanism involved, but it serves the desired end, which is so much to the point.

Relief for Long-Legged Drivers.

Not infrequently drivers who are possessed of unusually long pedal extremities experience considerable difficulty in handling the car owing to the cramped position which is made necessary by the location of the steering wheel and pedals. In most instances this can be alleviated partially, if not entirely, by the use of a small flat cushion on the seat.

Rubber hose which is or has been kinked, is apt to have breaks in the inner lining which tend to impede the flow of the water. Such breaks are a frequent source of trouble from overheating which otherwise seems inexplicable.

PAINTERS IN A RUT

Wherein Some of the Old Workmen have not Progressed—Advances in Priming.

"The reign of knowledge is supreme. The power of information is revolutionizing the world. Its influence is felt even in the paint shop, where it has of old time been charged that men simply know how to do certain things without knowing why they are done. The really valuable employe, of the paint shop, which means, let it be understood, the accurate employe, is one who has in his storehouse of trade information the wherefore of every process in painting and varnishing a vehicle," says an automobile painting expert in Carriage Monthly.

"To know how to do the various processes is good; to know why they are done is infinitely better. Such information or knowledge means more systematic execution of processes, fewer blunders, more profits, and business easier handled. This application, of course, in reference to the custom or jobbing shop.

"In the factory, where specialists are the rule, and a different set of conditions obtain, and where the employe simply performs a single process of work, thereby becoming merely a spoke in a big and rapidly revolving wheel, it is perhaps less urgent that the painter should know the reason back of the variously governing processes, but even here it is manifest that the thoroughly informed mechanic must, by the very force of circumstances, prove more valuable, and, on the whole, a better money-making force than one who works mechanically and apart from any mental exercise along the route of his daily toil.

"To know how to apply a certain coat of paint is not sufficient; why it is painted that way is an equally valuable bit of information to command. Some men go through the world without knowing that trade conditions are constantly changing; much less do they know the reasons—the why and wherefore—for that change.

"For more than fifty years some painters and their successors, have worshipped at the shrine of white lead and oil as the only fit priming coat. Apparently to-day they are unaware of the fact that, in response to the demand created out of modern conditions, transparent and other ready prepared primers are everywhere quite largely used; they do not permit themselves to know this.

"Nor, seemingly, do they wish to know that a comparatively quick and admittedly good priming may be made of white lead in oil with a trifle of lampblack added to cast the lead to a slate color, and thinned with equal parts of raw linseed oil and turpentine. Such priming dries free from gloss, and, as priming goes, dries rapidly.

"You hear these unstudied prophets of the paint shop speak, for example, of an egg-shell gloss paint in a way to intimate

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that such a gloss is a dangerous experiment. Over the priming an egg-shell gloss coat, speaking with technical correctness, is a coat minus gloss—a coat not as flat as whitewash nor yet is it a 'dead' color. In short, the egg-shell gloss coat shows 'signs of life' without being glossy or dead.

"The varnisher who knows how without knowing why may apply rubbing varnish more or less skillfully, but he does not understand the enormity of the blunder of brushing varnish over-much. Probably he has never questioned the efficacy or the cost of rubbing brush marks out. If he were to study the why and wherefore of these things there would no doubt be fewer brush marks—and, if you please, greater care and accuracy in wielding the brush."

To Braze Without Fire.

There are times when it is desirable to solder or braze a part where the use of heat is either impossible or unwise. For such cases, the American Machinist recommends the two following methods:

"(1) Take one ounce of sal-ammoniac, one of common salt, one of calcined tartar, and three of antimony. Pound well together and then put the mixture in a covered crucible over a slow fire to get hot by degrees. Keey up the fire until the contents of the crucible are melted. Then cool gradually, and when cold pound fine. Place the pieces that are to be joined together, fill the joint with the powder, and brush a solution of borax dissolved in hot alcohol over the joint with a feather. The powder will immediately boil up and as soon as the boiling ceases the consolidation is effected.

"(2) Take ¼-ounce of hydrofluoric acid, 2-ounces of brass filings and 1-ounce of steel filings. Put the filings into the fluoric acid; when dissolved touch the pieces to be joined with the acid and press together. Put the acid in an earthenware bottle, as it will dissolve glass."

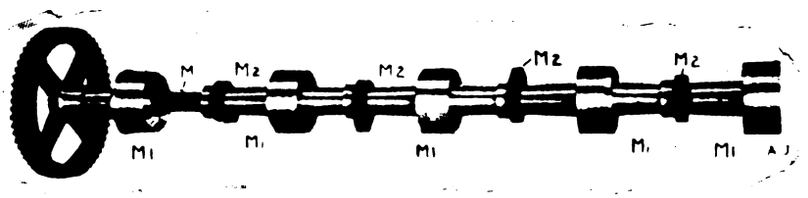
Automobile for Electric Lighting.

Compared with other machinery of the same power or the same cost, the motor of the automobile probably does less work than an engine of similar size and price in any other situation. Its use is confined to a comparatively small fraction of the day when figured in the aggregate and instances are numerous where owners have impressed their motive power for other needs such as pumping and sawing wood. Up to the present, however, manufacturers do not seem to have taken any heed of a demand of this sort that might be encouraged, particularly for dwellers in the rural districts. Now a French firm has brought out an attachment to permit of the engine being utilized as a source of power for generating current for electric light or other purposes. The car is run upon a set of fixed rails, blocked in place and the starting crank removed. The end of the motor shaft is provided with a coupling which is directly connected to a dynamo.

DEPARTURES IN SHAFTS

Features that Promote Ease of Handling and Accessibility in Dismounting.

Two features are especially noteworthy in the construction of the 20-24 horsepower Clement-Talbot motor, which, with the car into which it is installed is being hailed by the local press as "another all-British product," and which otherwise presents simply the appearance of a thoroughly modern and rational type of motor of conventional aspect. These two features centre about the construction of the crank and cam shafts which are novel, if not equally creditable.

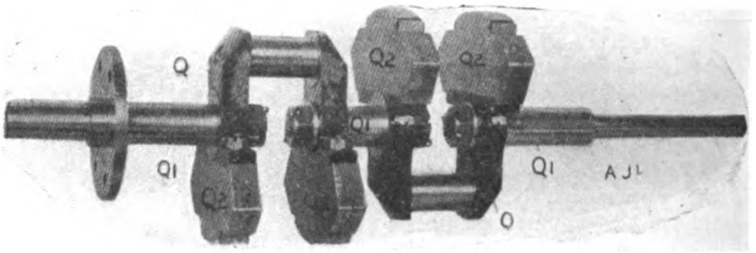


CLEMENT-TALBOT CAM SHAFT.

The former, which is of the built-up order, instead of being assembled of entirely independent components, as has been done not infrequently in the past, has the webs and crank pins integral, while the shaft stubs are separate and keyed in place. By this means, it is claimed that it is possible to harden the pins without risk of distortion owing to the heat treatment. In this manner, the pins and webs are machined and hardened to the desired degree, the subsequent fitting up and aligning of the shaft elements being a comparatively simple and easy matter. The pins being hollow, are cooled from the centre outwardly in the hardening process, thereby reducing the tendency to deformation, and the counter weights, which are applied to the two-cylinder type of crank, are bolted in place, simply to facilitate the grinding process and do away with the necessity of using an abnormally large wheel.

In the cam shafts is found a design which though not wholly new, is yet sufficiently novel to be distinctive. The bushings in which the shafts ride, are made of a diameter slightly greater than that of the cams themselves, and the exterior of the motor is so arranged that the shafts may be drawn forth integrally from the case, thus permitting dismounting without disturbing the setting of the elements. How important such an arrangement is to the repairman as well as the assembler, experience alone can tell, but that it is at least a great time saver is perfectly apparent even to the non-technical reader. In order to secure this arrangement, the cams, which are made separate from the shafts, are spaced apart by large bearing bushes M1, which serve to give a support for the shafts throughout nearly their entire length, and also fix the longitudinal position of the cams themselves. Thus, although an assemblage of parts, each shaft is essentially a unit, being self-locking when in place, and by that means, made equal in effective action to the ordinary and more expensive integral shaft.

Externally, the motor displays the independent cylinder formation with oppositely cast valve pockets, integral jackets and provision for double ignition on the inlet side. The cylinder heads are covered with removable plates, while the closure of the valve pockets is accomplished by means of removable plugs, containing the fittings for the pet-cocks and igniter plugs. All gears are fully enclosed, and the auxiliaries are contained on the engine base, thus eliminating all possibility of disorder through loss of alignment.



CLEMENT-TALBOT CRANK SHAFT.

Tire Tape for Temporary Repairs.

There is nothing to equal tire tape for making temporary repairs in the shape of patches to unexpected leaks in the circulating system or the fuel supply pipe, and a length of small bore rubber tube has often proved the means of averting the indignity of a tow in the case of a broken gasolene pipe. But it must be borne in mind that gasolene is a solvent of rubber and that the latter will not withstand its action for any great length of time.

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The Week's Patents.

822,297. Bearing. Edwin J. Newton, Chicago, Ill., assignor to William R. Everett, Chicago, Ill. Filed June 12, 1905. Serial No. 264,830.

Claim.—1. In a journal-bearing, the combination with the two relatively rotative members thereof, of roller-bearing members interposed between said rotative members, spacing-balls between the ends of said rollers, and parts carried by said rotative members adapted to bear against said spacing-balls, whereby the spacing-balls serve to take the end thrust.

822,307. Pneumatic-Tire Protector. William W. Scarborough and Charles E. Schultz, Knoxville, Tenn. Filed Feb. 4, 1905. Serial No. 244,251.

Claim.—1. The combination with the air-tube of a tire, of a shield having a rough inner surface fitted over and inclosing said tube for more than half its circumference and provided with openings in its peripheral portion, and a series of shoes independently supported on the tube and projecting through the openings in the shield, said shoes having flanges which lie between the tube and shield, and said shield being held on the tube by the inflation of the latter, substantially as described.

822,326. Water-Jacket. Frank H. Thyon, Utica, N. Y. Filed Oct. 3, 1903. Serial No. 175,545.

Claim.—1. In an engine of the character described provided with a water-jacket and a cylinder, means for connecting the same, the said means comprising a ring cast in the cylinder and having its edges turned to secure it in the casting and to provide a surface for the attachment of the jacket thereto, substantially as shown.

822,332. Induction-Coil. Montraville M. Wood, Schnectady, N. Y., assignor to General Electric Company, a corporation of New York. Filed Nov. 15, 1904. Serial No. 232,869.

Claim.—1. A composite winding, comprising an edge-wound conductor in the form of a helix, and a circular conductor lying between successive turns of said helix.

822,372. Tube for Radiating, Cooling and Condensing Apparatus. John G. A. Kitchen and Ludlow P. Perkins, Lancaster, England. Filed Feb. 12, 1904. Serial No. 193,276.

Claim.—1. The combination with a metallic tube of a polygonal coil of metal wire forming a multiple helix conaxial with the tube and gripping the outside of the tube.

822,439. Tire Construction. William F. Ellis, Stamford, Conn., and Edwin C. Davis, New Brunswick, N. J., assignors to The Universal Tire Company, New York, N. Y., a corporation of Maine. Filed Aug. 9, 1904. Serial No. 220,077.

Claim.—1. The combination, in tire construction, with a felly, of a channeled rim mounted on said felly, a yielding tread mounted on said rim over the peripheral opening therein and having flaps extended against the sides of the felly, nails or the like inserted in the felly after passing through said flaps, and annular guard-plates fastened to the sides of the felly and covering portions of the flaps between the felly.

822,453. Transmission Gear. William H. Hollopeter, Fostoria, Ohio. Filed Jan. 26, 1905. Renewed Nov. 16, 1905. Serial No. 287,729.

Claim.—1. In transmission-gearing, a driving-shaft, a pinion and a gear-wheel rigidly secured thereto, a pinion mounted loosely on the shaft, a driven shaft, a plurality of sets of planet-gears carried by said driven shaft, one of said planet-gears being in mesh with the gear, another with the pinion, and a third with the loose gear, normally loose annular racks in constant mesh with two sets of planet-gears, and independent means for locking said annular racks and the loose pinion from independent movement.

822,454. Friction-Clutch. Henry De F. Hubbard, Avalon, Pa. Filed July 11, 1904. Serial No. 215,988.

Claim.—1. A friction-clutch comprising a normally stationary loosely-journaled member adapted to communicate motion, a normally rotating member provided with an outer clutch-band, inner clutch-shoes, and two oppositely-acting operating levers connected with the terminals of said clutch-band and shoes respectively, with means for actuating the levers, substantially as set forth.

822,476. Spring-Wheel. Alexander G. Ramage, Edinburgh, Scotland, assignor of one-half to George Macmillan, Edinburgh, Scotland. Filed Aug. 28, 1905. Serial No. 276,037.

Claim.—1. The combination of a rim, spokes fixed to the rim, a hub, carriages running on the spokes and springs fixed to the hub and to the carriages.

822,496. Friction-Clutch. Edward H. Waugh, Chicago, Ill., assignor by mesne assignments, to The Double-Friction Coil Clutch Company, a corporation of Illinois. Filed July 5, 1904. Serial No. 215,245.

Claim.—1. In a friction-clutch the combination of driving and driven parts, a coil-spring connected at one end to one of said parts and having a free end, a loosely-mounted friction member, means whereby the free end of said coil and said friction member engage with each other, a co-operating member connected to rotate with one of said driving and driven parts, but capable of movement longitudinally thereof, and means for effecting frictional engagement between said members.

822,518. Wheel. Alfred Freschel, Chicago, Ill. Filed Apr. 21, 1905. Serial No. 256,759.

Claim.—1. The combination with a wheel provided with a rim having transverse recesses, of a band encircling the rim and having corresponding recesses and comprising sections having slip-joint interlocking connections, spring coiled-wire sections of less diameter than the band and interposed between the rim and band and having their coils seated in the recesses, means for securing each section against circumferential movement, and an outer casing covering the band and secured to the rim.

822,525. Spark and Valve Controlling Device for Explosion Engines. Robert M. Keating, Middletown, Conn., assignor to The R. M. Keating Motor Company, Middletown, Conn., a corporation. Filed Dec. 23, 1901. Serial No. 87,005.

Claim.—1. In a gasolene-engine, an interrupter-lever and mechanism connected thereto by which the sparking period is determined according to the position of said lever, the exhaust-valve having a stem, and means carried by the interrupter-lever to engage said exhaust-valve stem whereby the same may be opened by the intrrupter-lever, all combined.

822,561. Apparatus for Manufacturing

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Wheel-Tires. Peter D. Thropp, Trenton, N. J. Filed Nov. 1, 1905. Serial No. 285,366.

Claim.—1. Tire-forming apparatus comprosing an annular core or mandrel, annular pressure-rings arranged to engage the clencher edges of the tire leaving the outer body portion of the tire exposed and means for forcing the pressure-rings into a predetermined position with respect to the core or mandrel.

822,583. Vehicle-Tire. James Christy, Akron, Ohio. Filed Aug. 11, 1905. Serial No. 273,788.

Claim.—1. A wheel having a felly, rim, and a yielding tire which rests on the rim, the base of the tire being narrower than the rim, in combination with rings which fit over and rest upon the rim and overhang the base of each tire at each side thereof, and clips which are secured to the felly and extend out beside and beyond the edge of the rim and engage the rings thereon.

822,615. Vehicle-Wheel. Lewis G. Langstaff, New York, N. Y. Filed June 29, 1905. Serial No. 267,493.

Claim.—1. A vehicle-wheel comprising a hub, a tire and laterally-spreading spring means connecting the hub with the side edges of the tire.

822,634. Automobile Extension Canopy-Frame. Lewis C. Shipley, New York, N. Y. Filed Feb. 6, 1905. Serial No. 244,301.

Claim.—1. In an automobile extension-canopy, an extension-frame, a main frame, a hinge, said hinge being attached to said main frame and to the end of said extension frame, a plate attached at the end and on top of said extension-frame, said plate being bent an an angle to conform to the angle of one leaf of said hinge and adapted to bear against said leaf, a catch adapted to engage said bent portion of said plate and to hold the same, as and for the purpose set forth.

822,651. Tire-Armor. John Coan, Kansas City, Mo., assignor of one-fifth to Roy W. Coan, Gravity, Iowa. Filed July 31, 1905. Serial No. 272,003.

Claim.—1. An armor for tires of wheels, consisting of a series of independent overlapping sections, a tread-surface comprising obliquely-arranged corrugations arranged on each of said sections, and means whereby said sections are conected to the rim of the wheel to slide inwardly, substantially as described.

822,665. Automobile-Wheel. John C. Higdon, St. Louis, Mo. Filed Sept. 23, 1905. Serial No. 279,839.

Claim.—1. In an automobile, a hub-clamp in the form of a flaring socket clamped upon the inner end of a vehicle-hub independently of the wheel-spokes, and a toothed wheel carried by said socket; substantially as specified.

822,679. Combined Vehicle Braking and Starting Device. Joseph De Mazaraki, Etterbeek, near Brussels, Belgium. Filed Sept. 12, 1905. Serial No. 278,174.

Claim.—1. In a device of the class described, the combination with a wheel of the car, a belt-pulley fast on the axle of said wheel and a brake-lever, pivoted near its lower end; of a fork made one with a lower end of said lever, a non-rotatable shaft, secured to the branches of said fork, a rotatable case or drum on said shaft, an endless brake-band or belt passing around said belt-pulley and case or drum; a spiral spring within the latter, one end of said spring being attached to the non-rotatable shaft, while the other end is attached to the case, so that said spring is wound up when the case is rotated by the action of the brake-band; means for holding the spring in operative position, and means for transmitting the power of said spring to the motor-shaft after moving the brake-lever to its starting position, substantially as set forth.

822,681. Carburetter for Gasolene Engines. Robert A. Middleton, Rexburg, Idaho. Filed May 2, 1905. Serial No. 258,447.

Claim.—1. A carburetter having a liquid-fuel chamber with an air-passage extending through it, a carburetter-chamber above and communicating with the air-passage, a valve-chamber below and communicating with the air-passage, a valve-chamber below and communicating with the air-passage, a main air-supply tube extending into the valve-chamber, an auxiliary air-supply sliding in the valve-chamber around the main air-supply tube, a spring encircling the main air-supply tube, and a frusto-conical member mounted on the air-supply tube and engaged by the spring for the purpose specified.

822,702. Clutch and Transmission-Gear. Julius W. Walters, New York, N. Y. Filed June 9, 1903. Renewed Sept. 28, 1905. Serial No. 280,460.

Claim.—1. In a device of the class described, the combination with a shaft, of a driving member having a gear, a driven member, a shiftable member co-operating with said driving member and having an internal gear, and intermediate gears carried by the driven member and having meshing relation to the gear on the driving member and theinternal gear of the intermediate member.

822,711. Rim and Tire Fastening for Wheels. Robert H. Atcheson and Joseph H. Walsh, Chicopee, Mass. Filed July 31, 1905. Serial No. 271,909.

Claim.—1. In a wheel, a felly, a flat metallic band secured thereto, and having outstanding portions on opposite sides thereof extending in the plane of the periphery of the felly, a plurality of radially inwardly projecting headed studs secured to said outstanding portions of the metallic band, and separate annular substantially U-shaped tire-shoe-engaging rings located upon opposite sides of the felly and each ring having one of its parallel walls provided with a plurality of angular slots opening to the outer edge of the wall, the said walls of the rings being in overlapping engagement with the outstanding portions of the metallic band and the headed studs in interlocking engagement with the angular studs.

822,723. Ball-Bearing. Robert Conrad, Berlin, Germany. Filed Feb. 23, 1904. Serial No. 194,894.

Claim.—1. A ball-bearing including two concentric rings having opposing grooves on their adjacent faces, the sides of said grooves being uninterrupted throughout their circumference and adapted to admit balls to the grooved space between them by displacement of the rings eccentrically to each other.

822,726. Friction-Clutch. James F. Duryea, Springfield, Mass. Filed Dec. 12, 1904. Serial No. 236,501.

Claim.—1. The combination with a driving and driven shaft, of a friction-clutch mechanism consisting of a frame secured on the driving-shaft, and a second frame comprising a long hub having a bearing on the driving shaft and a driving connection with the driven shaft; pins on said frames parallel with the axis of the shaft and extending in the same direction, said second frame being nested within the area circumscribed by the pins of each other; friction-rings supported loosely on the pins of each frame those on the one alternating with and overlapping those on the other; a sliding hub mounted on the hub of said second frame, a flange thereon against the friction-rings, there being an abutment on said second hub for said rings; an adjusting device on the hub of the second frame constituting an adjustable abutment for said spring, and a lever connected with said sliding hub to move the latter away from said rings.

822,727. Friction-Clutch. James F. Duryea, Springfield, Mass. Filed Dec. 12, 1904. Serial No. 236,503.

Claim.—1. In a friction-clutch mechanism, a cup-shaped driving clutch-head connected to the driving-shaft, and a similarly-shaped driven clutch-head of smaller diameter nested within it, the closed ends of said head being adjacent one to the other and endwise immovable, there being a flange on one of said heads, a hub on the driven head to be connected to a driven shaft, friction-rings located in the annular space between the heads and alternately and loosely engaging the latter, a spring contained in said driving-head, and clutch-levers actuated by said spring to press said rings toward said flange; an adjusting device on the hub to limit the expansive movement of said spring, and a device on said hub to effect the compression of said spring.

822,750. Vehicle-Brake. Horace E. Martin, Athens,Ga. Filed Apr. 25, 1905. Serial No. 257,328.

Claim.—1. The combination, with a brake-lever having a laterally-projecting end portion, and a brake-block carried by the said end portion; of a pivot for the said lever, and a socket adjustable longitudinally upon the middle part of the said brake-lever and connecting it to its said pivot.

822,782. Current-Distributer for Sparking Devices. James M. Smith, Philadelphia, Pa., assignor by direct and mesne assignments, of two-thirds to Clarence L. Altemus and Herbert B. Bowles, Philadelphia, Pa. Filed May 23, 1904. Serial No. 209,330.

Claim.—1. A current-distributor for a sparking system including a relatively fixed and closed casing, terminals thereon having contacts extending within the casing, a shaft entering the casing substantially concentric with said contacts, a ring carried by but insulated from the shaft having a brush placed to engage the contact when the shaft is rotated, a second brush carried within the casing so as to be maintained in engagement with a ring, a series of contacts carried by the shaft outside of the casing, and a third brush engaging said contacts, sugstantially as described.

822,784. Automobile. Jacobus Spyker, Trompenburg, Netherlands. Filed Oct. 16, 1905. Serial No. 283,026.

Claim.—1. In an automobile in combination, a chassis formed as a cradle by a semi-circular sheet, with hollow sheet beams provided with cradle-securing flanges arranged longitudinally along the said cradle and removably connected to the same.

822,786. Elastic Wheel-Tire. Wilhelm Struck, Berlin, Germany. Filed Aug. 22, 1905. Serial No. 275,250.

Claim.—1. An elastic solid tire having a metal hoop surrounded by a layer of hard rubber embedded in its base, the metal hoop being formed concave on the tread of outer circumferential side.

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822,833. Friction-Clutch. James F. Duryea, Springfield, Mass. Filed Dec. 12, 1904. Serial No. 236,502.

Claim.—1. In a friction-clutch mechanism, a frame mounted on the driving-shaft, pins on the frame parallel with the axis of the shaft; a second frame having driving connection with the driven shaft, pins on the frame parallel with the first-named pins, said second frame being nested within the first and the pins on both extending in the same direction; a plurality of friction-rings supported loosely on the pins of each frame and arranged in alternative overlapping relation one with the other, nuts on the ends of the pins of the second frame constituting abutments for the rings, and radially-disposed levers pivotally supported on said second frame, the outer ends of which are arranged to bear against said rings to move the latter in the direction of said nuts, a member movable against the inner end of said levers to actuate the latter simultaneously, a spring to move said member, an adjusting device for the spring, and mechanism connected with said movable member to effect the compression of the spring.

822,996. Water-Cooling Apparatus. Arthur P. Smith, Springfield, Mass. Filed Feb. 24, 1903. Serial No. 144,670.

Claim.—A cooling apparatus, embodying a pair of spaced receptacles, the inner wall of each receptacle having a plurality of rectangular transversely-disposed slots extending the width thereof, a plurality of crimped tubes rectangular in cross-section and disposed opposite to one another to form diamond-shaped openings therebetween, said tubes projecting through said slots and beyond the outer face of said inner walls of the receptacles, and solder engaging about said projecting ends of said pairs of tubes and seating on the outer faces of said inner walls of the receptacles.

823,039. Wheel-Rim. Harry B. Williams, New York, N. Y. Filed Feb. 3, 1905. Serial No. 244,039.

Claim.—A bolt for holding a member upon a wheel-rim, having a head cut away at one end to form a recess, and rabbeted on its inner face to form a locking-shoulder, in combination with a removable member having a shoulder adapted to engage the locking shoulder on the head of the bolt under normal conditions to lock the bolt.

823,085. Clutch-Operating Mechanism. Clarence L. Taylor, Alliance, Ohio, assignor to The Morgan Engineering Company, Alliance, Ohio. Filed Apr. 18, 1903. Serial No. 153,300.

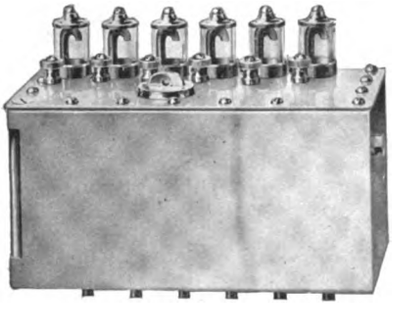
Claim.—1. The combination with a shaft, of a pinion loose thereon, a sliding clutch also mounted on said shaft and adapted to lock the pinion to the shaft, a rod extending lengthwise through the shaft and connected at one end with the clutch and means connected near the opposite end of the rod for automatically shifting the latter, once during each revolution of the shaft, in a direction to disengage the clutch and pinion thus automatically stopping the shaft after a complete revolution, substantially as set forth.



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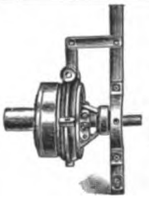
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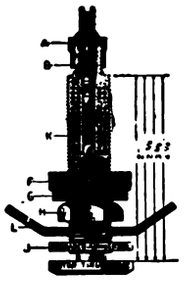
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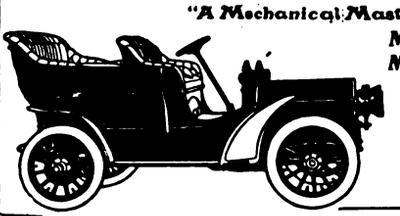
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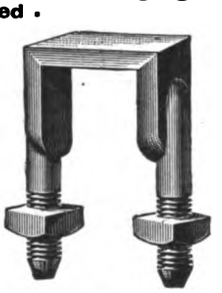
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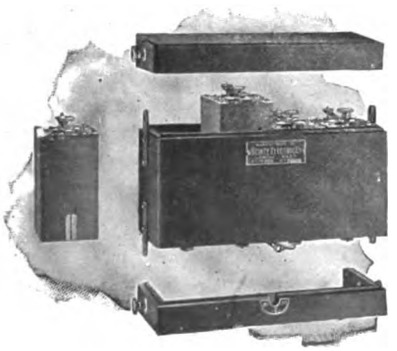
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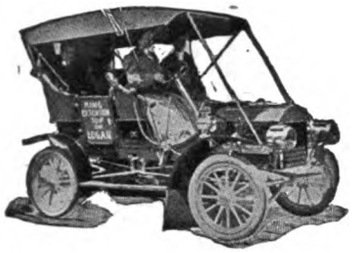
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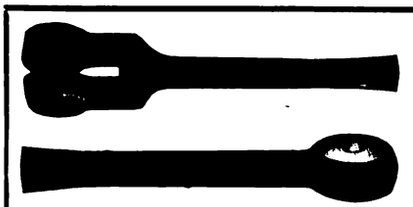
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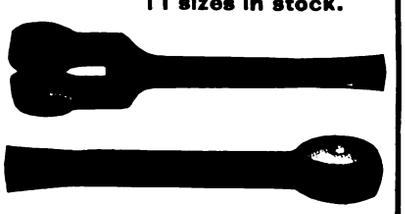


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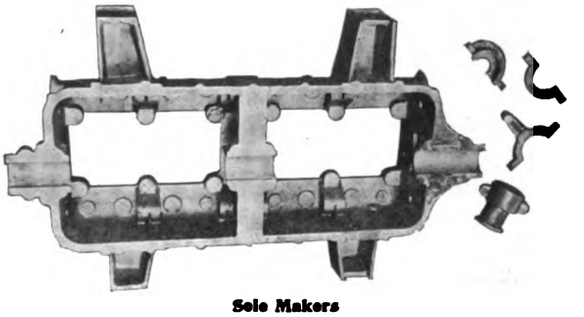


Automobile Parts

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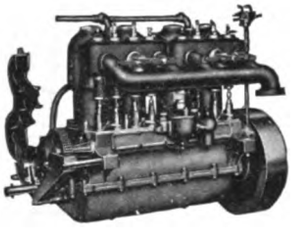
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A "CONTINENTAL" MOTOR



Type "O" 45 H. P.

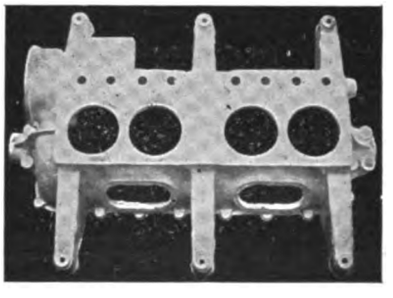
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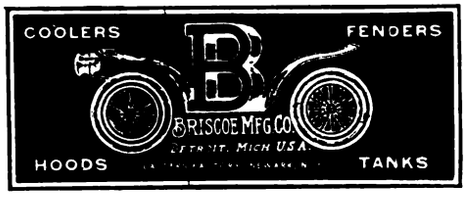
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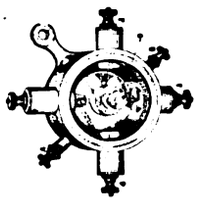


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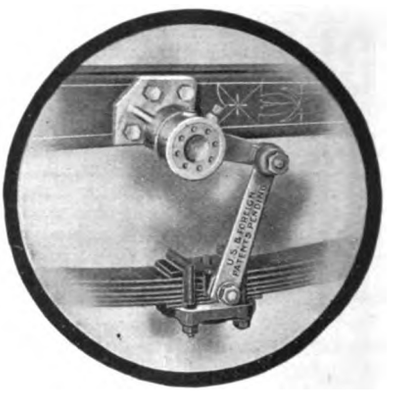
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The Diezemann Shock Absorber is mechanically perfect, *self lubricating* and dirt proof. It may be applied in any position with equal efficiency; when once properly adjusted it requires no further regulation.

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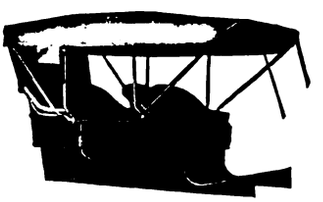
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Weak Batteries never bother the owner of an **Apple Battery Charger** Automatically generates a current that keeps batteries full and in a healthy condition. The Dayton Electrical Mfg. Co. 91 St Clair St., Dayton, O.



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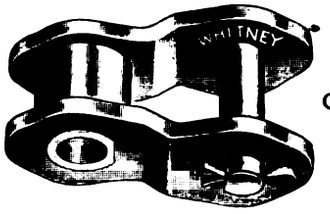
for 1906.
Send for Particulars.

GROUT BROTHERS AUTOMOBILE CO
ORANGE, MASS.

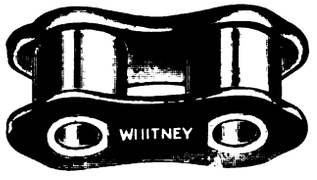
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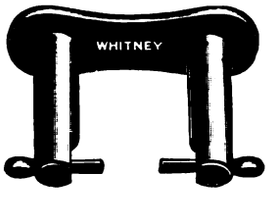
Connecting Link



OFFSET LINK



Assembled Center Block

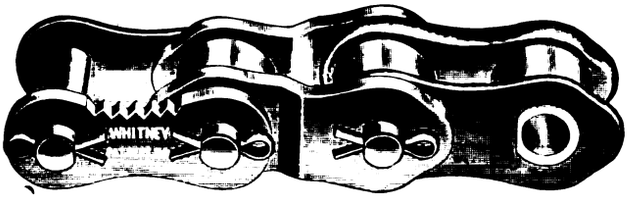


Side Link with Rivets Assembled



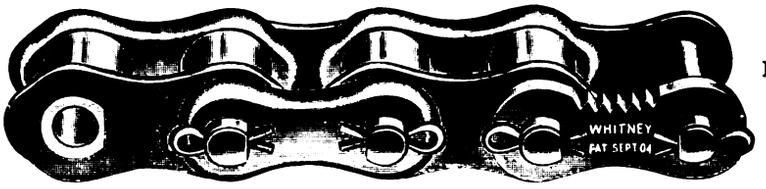
Side Link Plain

"Whitney" Offset Links for use when it is required to shorten or lengthen a chain only one Link.

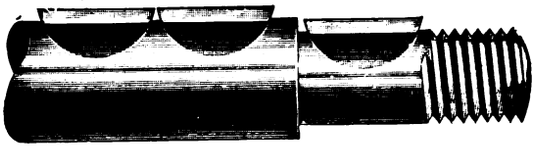


Against claims made by Competitors, we submit the following list of Motor Car Manufacturers using "WHITNEY" ROLLER CHAINS and STANDARDS. Is it not time for everyone to admit that "WHITNEY" STANDARDS for ROLLER CHAIN dimensions are now the American Standards?

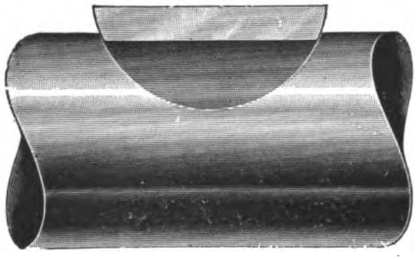
"ADAMS-FARWELL" "ADAMS VEHICLE CO." "AMERICAN MOTOR TRUCK" "AUTO-CAR EQUIPMENT" "BAKER" "BERKSHIRE" "BIDDLE-MURRAY" "CADILLAC" "COLUMBIA" "CHAMPION (McCrea)" "CROWN" "CRAWFORD" "COLUMBUS BUGGY CO." "ELWELL-PARKER" "FORD" "FRANKLIN" "GAETH" "GALE" "GROUT" "HEWITT" "THE HOLMES" "IROQUOIS IRON WORKS" "KNOX" "LAMBERT" "LEAR" "MATHESON" "MACK BROTHERS" "MITCHELL" "MOLINE" "NEW YORK MOTOR TRUCK" "OLDS" "PACKARD" "RAMBLER" "RAPID" "REO" "SIMPLICITY" "STEARNS" "THOMAS" "TOURIST" "WAYNE" "WESTERN MOTOR TRUCK" etc.

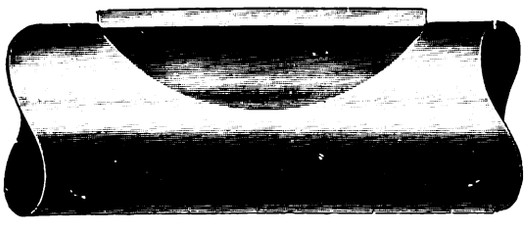


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Many a cross-country trip has been marred by inexcusable tire-behavior.

If tires are to play their part in the luxury of automobiling, they must be fully prepared to do battle with roads that are decidedly tough.

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CLINCHER———DUNLOP———BAILEY "WON'T SLIP" TREAD



Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

MORGAN & WRIGHT, CHICAGO

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WHERE THE ELMORE EXCELS.

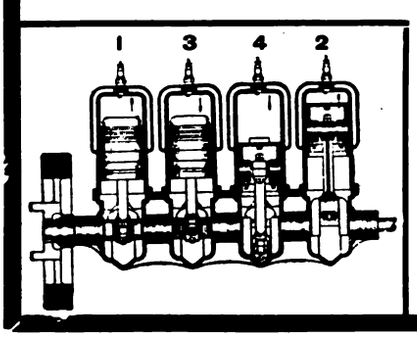
There is no touring car in the world which has so many impulses in a given time as the Elmore four cylinder Two-cycle.

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With the Elmore Two-cycle every outward piston thrust is energized, while with a four-cycle cylinder only every other thrust has power behind it.

Figure it out for yourself. To equal the number of impulses given by the Elmore four cylinder motor, it would require eight cylinders of the ordinary type.

The result is greater steadiness, because of virtually constant torque. Less racking of machinery, a great saving of up-keep expense, and not one valve or minor piece of valve mechanism to consider, adjust or replace.



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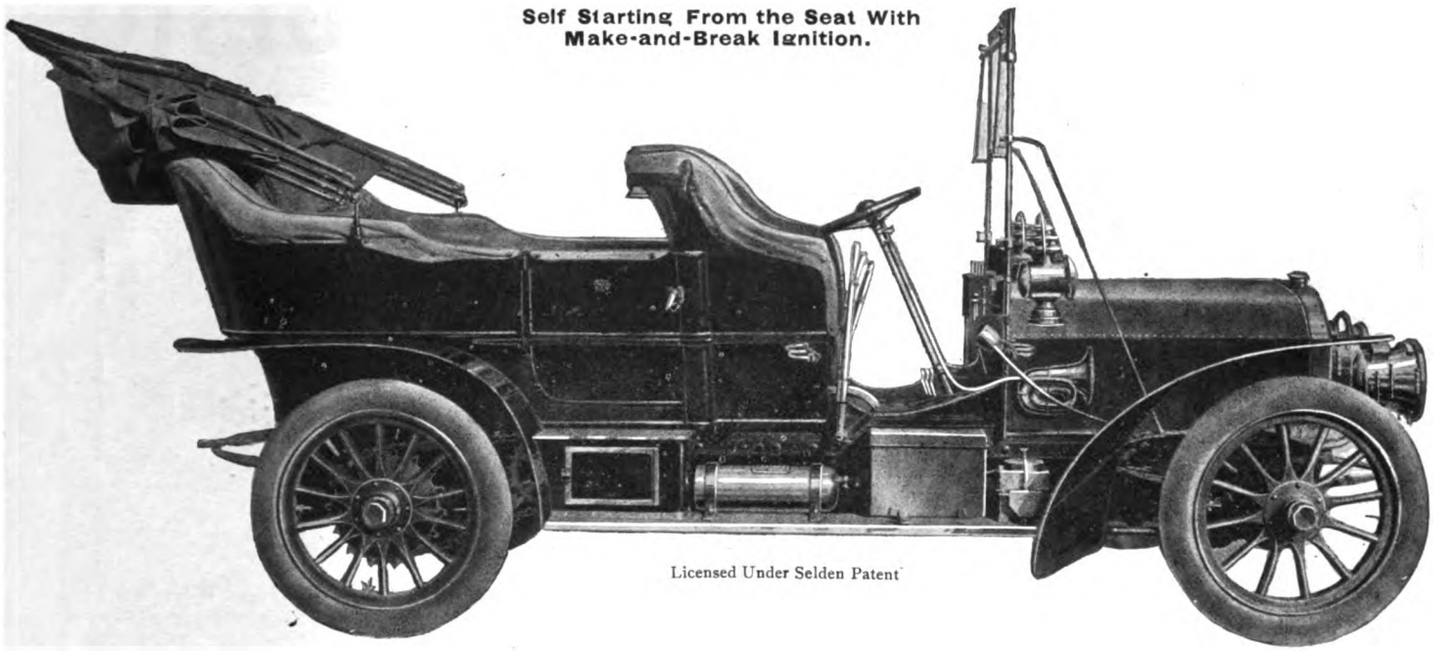
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CHROME-NICKEL STEEL used throughout in construction of shafts, transmission and gears.

"Matheson"

HESS-BRIGHT IMPORTED — ball-bearings secure perfect transmission of power from engine to wheel.

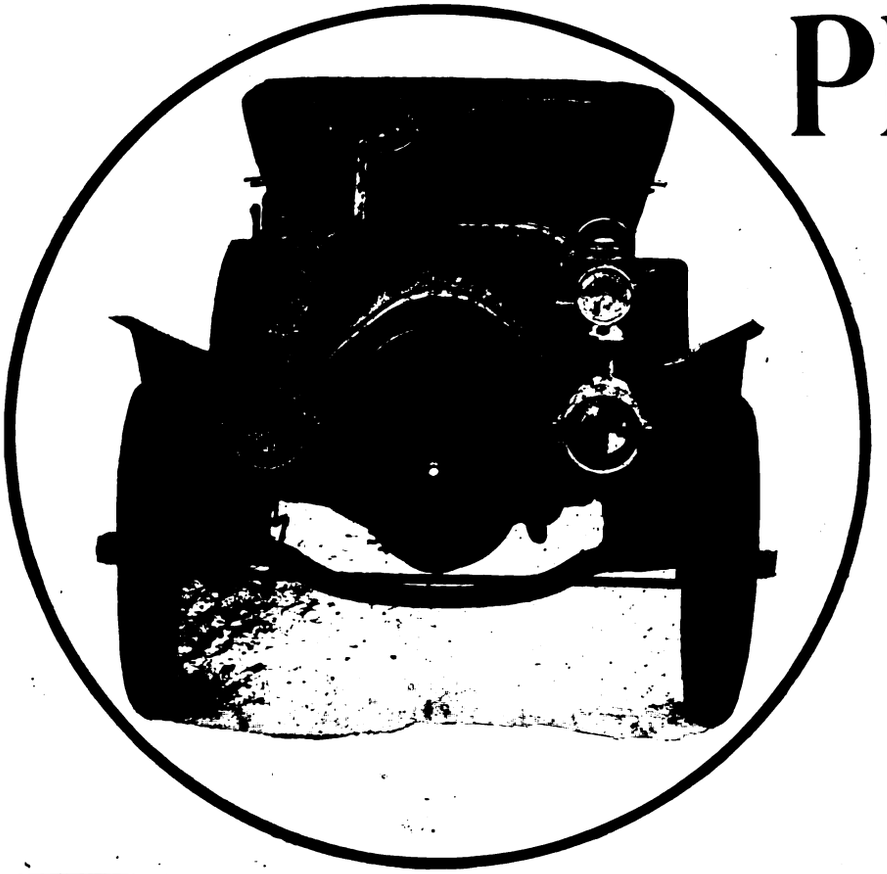
Self Starting From the Seat With Make-and-Break Ignition.



Licensed Under Selden Patent

THE MATHESON COMPANY OF NEW YORK,

FACTORY, WILKES-BARRE, PA. — 1619 BROADWAY, near 49th Street. — ONE YEAR GUARANTY.



PREMIER

DBF.—First in rank or position.

The Premier car here shown worthily bears its name. It's as good as most cars twice its price and twice as good as cars at anywhere near its own price.

Here are a few specifications:

Up-to-date design, I-beam section axle, selective type sliding gear transmission on Annular Ball Bearings, well designed bevel drive rear system, ideal and reliable oiling system, liberal sized tires, pleasing body design, luxurious upholstering, powerful and dependable air-cooled motor which performs well in hot or cold weather.

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Enthusiasm is a habit with us and has helped to find
ways for doing things bigger and better than ever before.
A power for good, and mightily in evidence when you use Goodrich Tires.

THE B. F. GOODRICH COMPANY, - - - - Akron, Ohio.

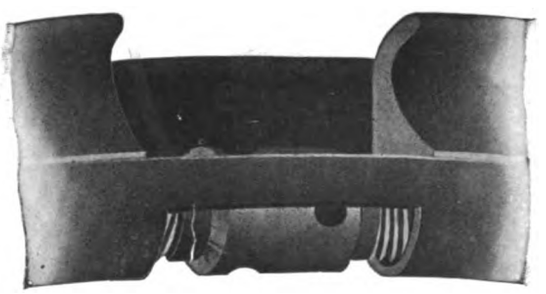
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SOMETHING'S WRONG



and the question is to find it. The Veeder Odometer readings show that it is taking half as much gasoline again to run the car 100 miles as it did a month ago. That means lack of lubrication somewhere or faulty engine operation. Anyway, it's serious, and it's lucky the Veeder Odometer readings showed it. A Veeder is a mighty valuable instrument on a car.

"It's nice to know
How far you go."

—*Veeder Odometers.*

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Makers of Cyclometers, Odometers, Tachometers, Tachodometers, Counters and Fine Castings.

A SUDDEN CHANGE IN MY PLANS MAKES IT NECESSARY FOR ME TO SELL MY

1906 model 28 h. p. 4 cylinder

OLDS TOURING CAR.

It has been run sixty days.

IS COMPLETELY EQUIPPED.

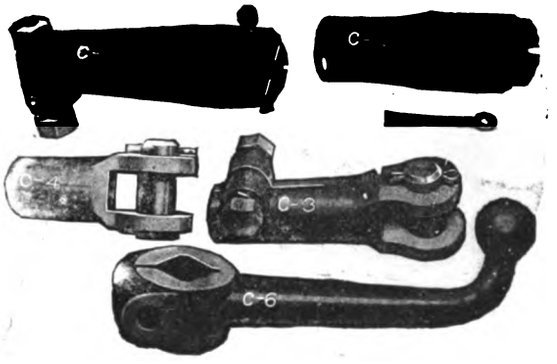
Will accept $1,700 F. O. B. St. Louis.

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B TRADE MARK **The B & S** B TRADE MARK

Steering Connections.



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EASILY ADJUSTED.

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For 1,000 miles and 1,094 3/16 miles in 24 hours
Made Nov. 17, 1905 STILL STAND UNEQUALLED



Proving National Superiority

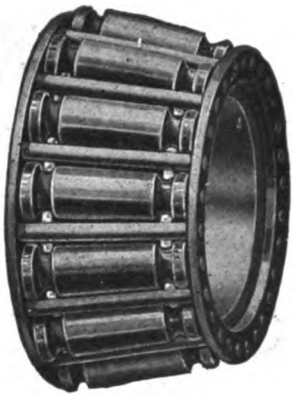
4 Cyl., 35-40 H.P. - $3,000 6 Cyl., 50-60 H.P. $4,000

NATIONAL MOTOR VEHICLE CO.
MEMBER AMERICAN MOTOR CAR MANUFACTURERS ASSOCIATION, CHICAGO.

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IND.

INCREASES THE POWER; REDUCES THE STRAIN


Cone.


Cone and Rollers.


Cup.

THOSE ARE TWO OF THE LARGE PURPOSES WHICH ARE SERVED BY

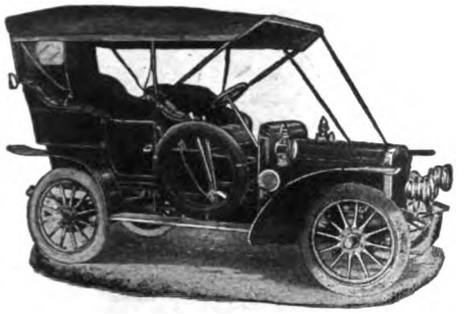
TIMKEN ROLLER BEARINGS

They are such far-reaching purpos s as to induce every person about to purchase a car, to discover whether those bearings are applied to it; and if not, why not.

TIMKEN ROLLER BEARING AXLE CO., - - - Canton, Ohio.

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Model A, 1906—24 H.P., Four Cylinder, Air Cooled—Delivered promptly complete in every detail of equipment as shown in illustration, including Standard Extension Black Top—Two Gas Headlights—Full Oil Lamp Equipment—Pres-to-Lite Tank—Hartford Shock Absorbers—Gabriel Horn—Speedometer—Extra Tire and Inner Tube in Waterproof Case with attaching Irons—Robe-rail and Foot-rest in Tonneau—Tool Box with full equipment on Running Board.

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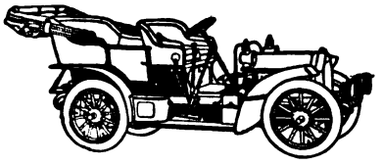
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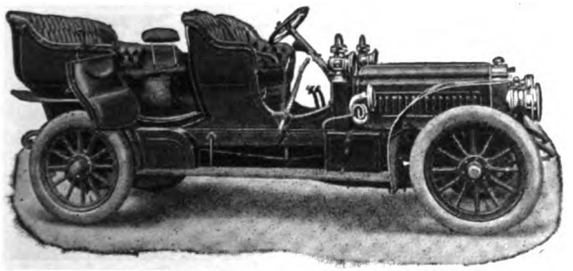
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OLDSMOBILE

PALACE TOURING CAR

Which on May 19th went over the hilly road between New York and Poughkeepsie with the *gear lever sealed* into the *High Speed Notch*

The test was held under the auspices of the New York Motor Club

(Tribune, May 18.)

AUTO TEST RUN TO POUGHKEEPSIE.

In order to demonstrate the qualities of the model S four cylinder touring palace car, the Oldsmobile Company has arranged a test to Poughkeepsie tomorrow, under the auspices of the New York Motor Club. Joseph Tracy, the well known driver who finished third in the Vanderbilt Cup race last year, and Ernest Koster, who is to drive the big six cylinder Oldsmobile in the Vanderbilt Cup race this year will take turns at the wheel.

The start will be made at 12 o'clock. The high speed clutch will be thrown in and sealed by A. B. Tucker, the secretary of the club who will act as observer. The stop at Poughkeepsie will be in front of the Nelson House and as there are several steep grades on the road the test should be an interesting one.

(Tribune, Sunday May 20.)

AUTO RUN TO POUGHKEEPSIE.

Poughkeepsie, N. Y., May 19.—A successful run was made with the high speed clutch thrown in all the way, by the model S four-cylinder Oldsmobile touring car from New York to this city to-day. The start was made shortly after noon and was under the auspices of the New York Motor Club.

The car arrived in splendid shape after its long journey. The high speed clutch, which was sealed by officials of the New York Motor Club will remain so until the morning. There were two observers in the machine, which was cleverly handled by Ernest Kooker, who is to drive the big six cylinder Oldsmobile in the Vanderbilt Cup race this year.

(Times, Saturday, May 19.)

AUTOMOBILE NOTES OF INTEREST.

An interesting trip to demonstrate the hill climbing qualities of the four cylinder touring car will be made to-morrow from this city to Poughkeepsie. Under the auspices of the New York Motor Club and with proper observers, an Oldsmobile will attempt to make the 75-mile run on the high speed gear and climbing all hills without a change of gear. Joe Tracy will drive the car.

(Times, Sunday, May 20.)

AUTO RUN ON HIGH-SPEED GEAR.

An unusual run was made yesterday by a 28-30 horse power Oldsmobile four-cylinder touring car from this city to Poughkeepsie. The run was made for the purpose of proving that the car could make the 75 mile trip without all the steep hills on the way on the high speed gear. While many automobilists were doubtful regarding the success of the test Ernest Kooker, who made the run, arrived at Poughkeepsie last evening in good condition. The start was made from the Broadway office of the Oldsmobile agency in this city. The high speed gear was thrown in and sealed, and it will not be unsealed until this morning. The car carried four passengers, besides the driver, and was selected to serve the Oldsmobile Vanderbilt Cup racer with him was H. T. Hatch, and the only observer was A. B. Tucker, secretary of the New York Motor Club. Mr. Tucker and E. L. Ferguson

(Times, Monday, May 21.)

The announcement has just been made by the Olds Motor Works that the Oldsmobile Vanderbilt cup racer will be a four cylinder car, instead of six cylinder car as at first intended. Lighter weights with the development of more power for the weight are the explanation that the engineers believe they will attain by a four-cylinder car. Ernest Kooker has been selected to drive the racer and the home of the Lansing officials went over the proposed Long Island course to study the road.

(Sun, May 19.)

Joe Tracy, who finished third in the 1906 Vanderbilt cup race yesterday denied the report that he was to drive the Oldsmobile candidate for the American team in the coming contest for the Vanderbilt cup. He said that only connection he would have with the Oldsmobile racer would be that of adviser to George W. Dunham, who is supervising the construction of the car. Tracy has made one visit to the factory to confer with Mr. Dunham and expects to make another visit there within the next week or two. He said emphatically that so far he did not know the plan to have Ernest Kooker drive the racer had not been changed and he did not think that it would be.

(Sun, Sunday, May 20.)

AUTO TRIP TO POUGHKEEPSIE ON HIGH-SPEED GEAR.

Under the official observance of two New York Motor Club members Com. John T. Cutting's 28-32 horse-power Oldsmobile touring car made an automobile run from New York to Poughkeepsie yesterday. The start was made from the corner of Broadway and Fifty-first street and the journey was made entirely on the high speed gear, which was thrown in and sealed by Secretary A. B. Tucker of the Motor Club before the engine was started. Paul L. Sautel, chairman of the technical committee, and E. L. Ferguson represented the New York Motor Club as observers. The car was driven by Ernest Kooker, who will pilot the Oldsmobile racer in the American elimination trials for this year's Vanderbilt cup race, and Joe Tracy, the well known racing driver who finished third in the 1906 Vanderbilt cup race.

(Post, Saturday, May 19.)

The interest in the novel test to be run on Saturday by the Olds Motor Works of Lansing, Mich., was given impetus at the joint meeting of the contest and technical committees of the New York Motor Club last night at their rooms in the Cumberland Hotel. The meeting was called to devise the ways and means for the run to Poughkeepsie to be made by the 28-30 horsepower Palace touring car, which the Olds claim can make the run to the Nelson House with the high speed gear thrown in and sealed. According to the statistics of the club, a test of this kind has never been attempted here or abroad.

The rules as decided by the club are as follows:

The high-speed gear is to be thrown in and sealed before the motor is started. Four passengers are to be carried during the whole trip. The drivers are allowed the privilege of shifting down hill under the force of gravity in case the first attempt fails.

Joseph Tracy, of Vanderbilt cup fame, and Ernest Kooker, the man who will pilot the Oldsmobile cup racer this year are to alternate as drivers. Two members of the club are to accompany the car as observers, and will turn in a complete record of the performances of the car at the finish.

(Post, May 21.)

AUTOMOBILE NOTES.

Undoubtedly nothing is harder to prove than the hill-climbing abilities of a car. The Oldsmobile Company of No. 1645 Broadway have, however, worked out a way, and yesterday demonstrated its practical ability as well as its hill-climbing ability of their Palace touring car by making a sealed high-gear run from New York to Poughkeepsie on Saturday.

In order that all observation should be absolutely accurate and officially recorded a proposal was submitted to the members of the contest and technical committees of the New York Motor Club, asking for their official sanction and cooperation. The request was granted, and Mr Paul L. Sautel, chairman of the technical committee, and Mr E. L. Ferguson another member of the board were delegated to act as observers.

The car used for the test was the Palace touring car model "S," which is equipped with a 24-28 horse power motor of the four-cylinder water-cooled type, sliding gear transmission with selective control.

Under the conditions of the test the control lever was thrown into the high speed position and sealed by Mr Ferguson in the presence of the other members of the club and members of the press. It was necessary to start and operate the machine entirely on high gear as the drivers were not allowed to change speeds even for reversing. Due to the fact, however, that the car has a range of from three miles an hour to fifty-two miles an hour it was possible to make the whole trip without violating any of the speed ordinances and at the same time have sufficient power in reserve to climb all the hills en route.

The car left the Oldsmobile agency, No. 1645 Broadway, at 12 35, with Ernest Kooker and Joseph Tracy as pilots. The trip to Yonkers, where Tracy turned the wheel over to Kooker, was made at the average of fourteen miles an hour. Dobbs Ferry, Tarrytown and Ossining were passed with three or more running like clock work. The long and sandy hill south of Croton afforded the motor its first real test. Speeding up on the flat across the bridge and viaduct Kooker had the car going at forty-five miles when he struck the sandy hill. When near the top of the hill, which is 23 degrees, the driver of a truck, being confused by the horn and yelling, abandoned his team, leaving them in the middle of the road. For a while things looked dubious, and it was only by the wonderful skill of the driver that the car was saved from being overturned, the car passing the team with two wheels in the ditch. Owing to the crowded condition of the main thoroughfare and the extremely deep "thank you marms" at the bottom of Welcher Hill, north of Croton, no flying start could be made. This hill was probably the hardest test on the car and motor. The surface of the road was very poor, being covered with three or four inches of dirt, which was being used in the annual spring readmaking. At Peekskill gasoline, water and oil were taken aboard. Annsville hill, 300 degrees, just north of Peekskill, was taken with a flying start. The top of the hill was made with the speedometer registering between eighteen and twenty miles an hour. The run through Fishkill and Wappinger's Falls to the Nelson House, in Poughkeepsie, was uneventful. Considerable interest was displayed in Poughkeepsie. The seal on the high speed clutch which was put on by the secretary of the Motor Club was allowed to remain intact until Sunday morning, when it was broken by Mr. H. N. Bain, proprietor of the Nelson House, under the direction of the Motor Club officials, at 9 30 A. M.

(Mail, May 18.)

In order to make good his claims that the Oldsmobile four-cylinder palace touring is able to negotiate any hill in the metropolitan district on high gear, Gen. John T. Cutting has arranged for an official test which shall be convincing. Under the auspices of the New York Motor Club and the immediate supervision of Paul L. Sautel, chairman of the technical committee of the club, a palace touring car will leave the New York annex 1645 Broadway, to-morrow at 12 o'clock for Poughkeepsie. The high-speed clutch will be thrown in and sealed by A. B. Tucker, secretary of the club, in the presence of Mr Sautel who will accompany the car and act in the capacity of observer in the interests of the club. The machine will leave the Nelson House and be followed. Joseph Tracy, the well known driver, who took third place in the Vanderbilt race last year, and Ernest Kooker, who is to drive the big six-cylinder Oldsmobile in the cup race this year, will pilot the car. In view of the fact that there are several well known steep grades to be negotiated on the trip, the event is already exciting considerable comment among the trade and it is rumored that the Oldsmobile will be challenged by other makers.

(Mail, May 21.)

HILL-CLIMBING TEST OF OLDSMOBILE MOTOR CAR.

By John C. Wetmore.

The vaunted ability of the Oldsmobile four-cylinder palace touring car to climb on the high gear the average hills to be found within a big radius of this city was demonstrated on Saturday afternoon by a run of seventy-five miles from this city to Poughkeepsie in a manner that would seem to leave Gen. Cutting's claim in this respect for the car without dispute. With Ernest Kooker, who is to drive the Olds Motor Works Vanderbilt Cup candidate and Joe Tracy, of expert and racing fame, dividing the work at the wheel, and two members of the New York Motor Club acting as official observers, and with the clutch sealed on high gear, the run over the consecutively occurring and often difficult hills en route was made without the car once being stalled, and without a hitch of the machinery, in 5 hours and 10 minutes net running time.

Paul L. Sautell, chairman of the technical committee, and E. L. Ferguson, another member of the board, acted as observers. The car used was the model "S," which is equipped with a 26-28 horse power motor of the four cylinder, water-cooled type and selective transmission with sliding gear control. Due to the fact that the car has a range of from three miles an hour to fifty-two miles an hour it was possible to make the whole trip without violating any of the speed ordinances and at the same time have sufficient power in reserve to climb all the hills en route.

The car left the Oldsmobile agency, No. 1645 Broadway, at 12 35. The trip to Yonkers, where Tracy turned the wheel over to Kooker, was made at the average of fourteen miles an hour. Dobbs Ferry, Tarrytown and Ossining were passed with the motor running like clock work.

The long and sandy hill south of Croton afforded the motor its first real test. Speeding up on the flat across the bridge and viaduct, Kooker had the car going at forty-five miles when he struck the sandy hill. When near the top the driver of a truck, being confused by the horn, abandoned his team, leaving them in the middle of the road. For a while things looked dubious and it was only by the wonderful skill of the driver that the car was saved from being overturned. It passed the team by going with two wheels in the ditch.

Owing to the crowded condition of the main thoroughfare and the extremely deep "thank you marms" at the bottom of Whicher hill north of Croton, no flying start could be made. This hill was probably the hardest test on the car and motor. The road was very poor, being covered with three or four inches of new dirt. At Peekskill gasoline, water and oil were taken aboard. Annsville hill, just north of Peekskill was taken with a flying start. The top of the hill was made with the speedometer registering between eighteen and twenty miles an hour.

The run through Fishkill and Wappinger's Falls to the Nelson House in Poughkeepsie was uneventful. Considerable interest was displayed in Poughkeepsie. The seal on the high speed clutch which was put on by the secretary of the Motor Club was allowed to remain intact until Sunday morning, when it was broken by H. N. Bain, proprietor of the Nelson House, under the direction of the Motor Club officials at 9 30 a. m.

(Courier, Poughkeepsie.)

ARRIVAL OF THE OLDSMOBILE.

Yesterday afternoon quite a remarkable test of a motor car took place and the machine was completed in this city. A 1906 model Oldsmobile touring car was started from New York at 12 35 p. m. and with the high speed sealed in make the run here in about five hours. This was the first test of its kind ever held, and demonstrates the possibility of making difficult grades as well as running for hours and hours on the high speed. The run was made under the auspices of the New York Motor Club, and a member of that organization was carried in the car as judge.

Another purpose of the run was the presentation of the new model to John Van Brunschot, who has always had the Oldsmobile agency here. The machine is finished in a brilliant red and presents a handsome appearance. It was driven to Yonkers by Joseph Tracy and the rest of the way by Ernest Kooker.

(Press, Monday, May 21.)

FINE RUN OF OLDSMOBILE CAR.

Auto Company Makes Successful Test on Trip to Poughkeepsie.

Nothing is harder to prove than the hill climbing abilities of a car. The Oldsmobile Company, however, has worked out a way and yesterday demonstrated practical ability as well as the hill-climbing ability of their Palace touring car by making a sealed high-gear run from New York to Poughkeepsie on Saturday.

In order that all observation should be absolutely accurate and officially recorded a proposal was submitted to the members of the contest and technical committees of the New York Motor Club, asking for their official sanction and cooperation. The request was granted, and Mr Paul L. Sautel, chairman of the technical committee, and Mr E. L. Ferguson another member of the board were delegated to act as observers.

The car used for the test was the Palace touring car model "S," which is equipped with a 26-28 horse power motor of the four-cylinder water-cooled type, sliding gear transmission with selective control.

Under the conditions of the test the control lever was thrown into the high speed position and sealed by Mr Ferguson in the presence of the other members of the club and members of the press. It was necessary to start and operate the machine entirely on high gear as the drivers were not allowed to change speeds even for reversing. Due to the fact, however, that the car has a range of from three miles an hour to fifty-two miles an hour it was possible to make the whole trip without violating any of the speed ordinances and at the same time have sufficient power in reserve to climb all the hills en route.

The car left the Oldsmobile agency, No. 1645 Broadway, at 12 35. With Ernest Kooker and Joseph Tracy as pilots. The trip to Yonkers, where Tracy turned the wheel over to Kooker, was made at the average of fourteen miles an hour. Dobbs Ferry, Tarrytown and Ossining were passed with three or more running like clock work. The long and sandy hill south of Croton afforded the motor its first real test. Speeding up on the flat across the bridge and viaduct Kooker had the car going at forty-five miles when he struck the sandy hill. When near the top of the hill, which is 23 degrees, the driver of a truck, being confused by the horn and yelling, abandoned his team, leaving them in the middle of the road. For a while things looked dubious and it was only by the wonderful skill of the driver that the car was saved from being overturned, the car passing the team with two wheels in the ditch. Owing to the crowded condition of the main thoroughfare and the extremely deep "thank you marms" at the bottom of Welcher Hill, north of Croton, no flying start could be made. This hill was probably the hardest test on the car and motor. The surface of the road was very poor, being covered with three or four inches of new dirt, which was being used in the annual spring readmaking. At Peekskill gasoline, water and oil were taken aboard. Annsville hill, just north of Peekskill was taken with a flying start. The top of the hill was made with the speedometer registering between eighteen and twenty miles an hour. The run through Fishkill and Wappinger's Falls to the Nelson House, in Poughkeepsie, was uneventful. Considerable interest was displayed in Poughkeepsie. The seal on the high-speed clutch which was put on by the secretary of the Motor Club was allowed to remain intact until Sunday morning, when it was broken by H. N. Bain, proprietor of the Nelson House, under the direction of the Motor Club officials at 9 30 a. m.

(Herald, May 19.)

AUTOMOBILE NEWS NOTES.

Joseph Tracy will attempt to drive a 28-30 horsepower touring car from New York to Poughkeepsie to-day with the high speed gear thrown in and sealed. The start will be started. Four passengers will be carried. This will be the first test of the kind ever attempted.

(New York Herald, Sunday, May 20.)

MADE RUN ON HIGH GEAR.

One of the most remarkable automobile tests ever held in this city was conducted yesterday under the auspices of the New York Motor Club. A 28 horse power Oldsmobile was run from New York to Poughkeepsie, a distance of seventy-five miles, with the high speed gear thrown in and sealed before the motor was started. The run was made almost entirely by Joseph Tracy and Ernest Kooker and carried also Paul L. Sautzel and E. L. Ferguson, representing the New York Motor Club. These two telegraphed back to the club last night that the run of the test were astonishing.

The route to Poughkeepsie, via Yonkers, Tarrytown, Peekskill and Fishkill affords fair road surfaces, but is extremely hilly. The most difficult climb encountered is the famous Welcher hill, near Peekskill, with a grade running up to seventeen per cent. The run successfully made all the climbs and the clutch was still sealed upon arrival at Poughkeepsie. It will remain sealed until registration to-day. The run was made in about six hours.

(American, Saturday, May 18.)

The Olds Motor Works in order to demonstrate the hill-climbing qualities of their four-cylinder touring car, which they have originated a novel idea of testing its claim that the machine can climb any hill within seventy-five miles of New York on the high speed. Under the auspices of the New York Motor Club and under the immediate supervision of Paul L. Sautzel, chairman of the technical committee of the club, an Oldsmobile will start from 1645 Broadway at noon to-morrow for a journey to Poughkeepsie. The high speed lever will be thrown in and sealed by A. B. Tucker, secretary of the club, in the presence of Mr. Sautzel who will accompany the car as observer. Joe Tracy and Ernest Kooker, who is to drive the six-cylinder Oldsmobile in the Vanderbilt Cup race this year, will be on the machine.

Those who have been over the road from here to Poughkeepsie know of a number of steep grades that must be negotiated during the progress of the trip and the proposed test is sure to attract a lot of attention not only among automobilists, but among townspeople, some of whom doubt the ability of any automobile to make the entire trip on the high speed.

Final instructions have been issued for the automobile parade of the Long Island Automobile Club to-morrow

(Globe, May 21.)

One of the most remarkable trips made by an automobile and one that automobilists are still discussing was made on Saturday when a 26-28-horse-power Oldsmobile touring car, with sliding gear transmission, traveled from New York to Poughkeepsie directly on the high gear. The high gear lever was sealed by members of the technical committee of the New York Motor Club and P. L. Sautzel and E. L. Ferguson, members of the club, accompanied the car. The drivers were Ernest Kooker and Joseph Tracy. Not the slightest difficulty was experienced in making all hills, a fact that many automobilists considered impossible

(The Commercial, May 18.)

AUTOMOBILE NEWS.

By John S. Eastis.

Interest in the hill-climbing contests which is uppermost in the minds of motor enthusiasts has not abated. Not only this but the manufacturers are going to realize that the purchaser of a car must be shown that the machine is capable of making good. The Olds Motor Works of Lansing, Mich., in order to demonstrate the hill-climbing qualities of its model "S" four cylinder palace touring car, has originated a novel idea of testing the assertion that the car can climb any hill within a radius of 75 miles of New York on high speed.

Under the auspices of the New York Motor Club and under the immediate supervision of Paul L. Sautzel, chairman of the technical committee of the club, an Oldsmobile will leave the New York agency on Saturday at 12 o'clock for Poughkeepsie. The high speed clutch will be thrown in and sealed by A. B. Tucker secretary of the club, in the presence of Mr Sautzel, who will accompany the car and act in the capacity of observer in the interests of the club. The same route will be followed. Joseph Tracy, the well-known driver, who took third place in the Vanderbilt race last year, and Ernest Kooker, who is to drive the big six-cylinder Oldsmobile in the cup race this year, will pilot the car. In view of the fact that there are several well-known steep grades to be negotiated during the progress of the trip, the event is already exciting considerable comment among the trade, and it is rumored that the Oldsmobile will be challenged by other makers

(Commercial, May 22.)

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By John S. Eastis.

Of the many tests to which the motor car has been subjected none is more severe, for the length of time it lasted, than that conducted on Saturday under the auspices of the New York Motor Club, when a 26-28 car was sent from New York to Poughkeepsie under its own power, with the high speed gear thrown in previous to the start and sealed. The car, a 26-28-horsepower Oldsmobile, driven alternately by Joseph Tracy and Ernest Kooker, made the entire run, a distance of seventy-five miles, over grades, on its high speed without any trouble. Paul L. Sautzel and E. L. Ferguson, of the club's technical committee acted as observers.

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(Globe, May 18.)

HILL-CLIMBING TEST

Four-Cylinder Touring Oldsmobile Will Run at High Speed to Poughkeepsie.

BIG L. I. PARADE TO-MORROW.

At Least 200 Cars Are Expected to Form in Line in Prospect Park Plaza.

By ALFRED REEVES.

In order to demonstrate the hill climbing qualities of the four-cylinder touring car, the Olds Motor Works has originated a novel idea for testing its claim that the machine can climb any hill within seventy-five miles of New York on the high speed. Under the auspices of the New York Motor Club and under the immediate supervision of Paul L. Sautzel, chairman of the technical committee of the club, an Oldsmobile will start from 1645 Broadway at noon to-morrow for a journey to Poughkeepsie. The high speed lever will be thrown in and sealed by A. B. Tucker, secretary of the club, in the presence of Mr. Sautzel who will accompany the car as observer. Joe Tracy and Ernest Kooker, who is to drive the six-cylinder Oldsmobile in the Vanderbilt Cup race this year, will be on the machine.

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Of the many tests to which the motor car has been subjected none is more severe, for the length of time it lasted, than that conducted on Saturday under the auspices of the New York Motor Club, when a 26-28 car was sent from New York to Poughkeepsie under its own power, with the high speed gear thrown in previous to the start and sealed. The car, a 26-28-horsepower Oldsmobile, driven alternately by Joseph Tracy and Ernest Kooker, made the entire run, a distance of seventy-five miles, over grades, on its high speed without any trouble. Paul L. Sautzel and E. L. Ferguson, of the club's technical committee acted as observers.

The car left the Oldsmobile agency, No. 1645 Broadway, at 12 35 p. m., with Ernest Kooker and Joseph Tracy as pilots. The trip to Yonkers, where Tracy turned the wheel over to Kooker, was made at the average of 14 miles an hour. Dobbs Ferry, Tarrytown and Ossining were passed with three or more running like clock work. The long and sandy hill south of Croton afforded the motor its first real test. Speeding up on the flat across the bridge and viaduct, Kooker had the car going at forty-five miles when he struck the sandy hill. When near the top of the hill the driver of a truck, being confused by the horn and yelling, abandoned his team, leaving them in the middle of the road. For a while things looked dubious and it was only by the wonderful skill of the driver that the car was saved from being overturned. It passed the team by going with two wheels in the ditch.

Owing to the crowded condition of the main thoroughfare and the extremely deep "thank you marms" at the bottom of Whicher hill north of Croton, no flying start could be made. This hill was probably the hardest test on the car and motor. The road was very poor, being covered with three or four inches of new dirt. At Peekskill gasoline, water and oil were taken aboard. Annsville hill, just north of Peekskill was taken with a flying start. The top of the hill was made with the speedometer registering between eighteen and twenty miles an hour.

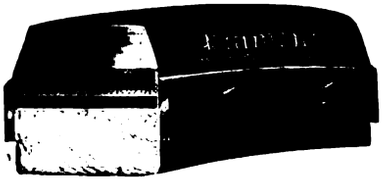
The run through Fishkill and Wappinger's Falls to the Nelson House in Poughkeepsie was uneventful. Considerable interest was displayed in Poughkeepsie. The seal on the high speed clutch which was put on by the secretary of the Motor Club was allowed to remain intact until Sunday morning, when it was broken by H. N. Bain, proprietor of the Nelson House, under the direction of the Motor Club officials at 9 30 a. m.

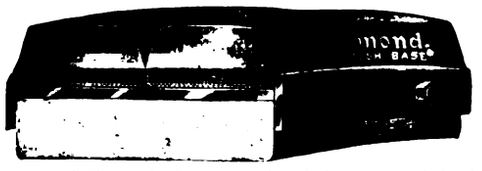
For full particulars address Department K.

OLDS MOTOR WORKS, (Member A. L. A. M.) **Lansing, Mich., U. S. A.**

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¶Manufacturers have encountered many failures in their efforts to evolve a practical tire for the Motor Truck.
¶The same was true of the Pleasure Car Tire for years.
¶It was perhaps to be expected that the makers of the famous Diamond Wrapped Tread Clincher Tire, the leader on pleasure cars, should also be first to present the practical and satisfactory tire for the Commercial Vehicle.





Diamond

Wire Mesh Base Construction

HAS SOLVED THE REALLY HARD PROBLEM OF TWENTIETH CENTURY TRANSPORTATION.

¶The solution, now that it has arrived, looks and is as simple as 2 + 2.
¶It seemed for a time as if manufacturers regarded the truck as an overgrown buggy. Their offerings in truck tires were simply enlarged buggy tires, in shape and principle.
¶When used, the difference was quickly and sadly discovered. The tires tore from the rims. Buggy tire attaching devices wouldn't work on "road locomotives." Buggy tire compounds were quickly ground away or torn to pieces in the new work.
¶And tire difficulties cast the permanency of the commercial vehicle industry in doubt
¶Then came the new tire—Wire Mesh Base. Anyone can apply it—anywhere. No machinery is required. It is simple: it is scientific—and it does the work.
¶In succeeding issues, in this space, the points which make Diamond Wire Mesh Base Tires the only practical ones in their field. will be taken up, one by one, and discussed.
¶Watch for them.
¶In the meantime, our special catalogue will also present some valuable and interesting tire facts. Let us send it to you.

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

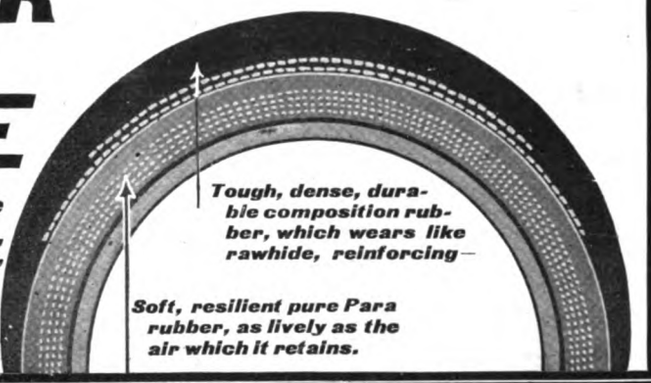
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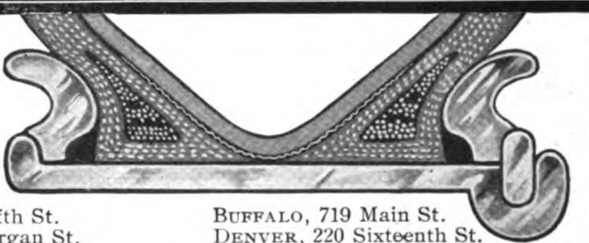
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is "wrapped tread" construction. The soft, resilient Para Rubber and the tough, dense composition rubber are "wrapped" together and vulcanized into an inseparable whole. This gives a tire which is



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almost as durable as a Solid Tire, and as Resilient as the liveliest. Call at the factory or any of the following branches and let us demonstrate.

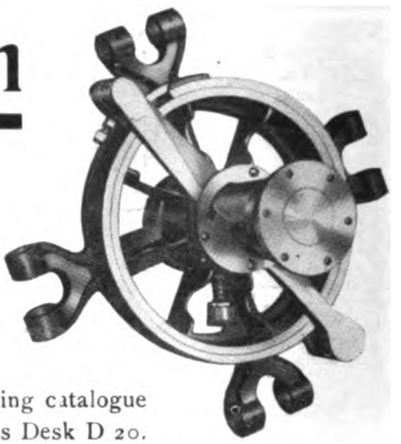


BOSTON, 261 Dartmouth St.
NEW YORK, cor. Sixty-fourth St. and Broadway.
CHICAGO, 82-84 Michigan Ave.
CINCINNATI, 242 E. Fifth St.
ST. LOUIS, 712-714 Morgan St.
OAKLAND, Geo. P. Moore & Co., 377 10th St.
BUFFALO, 719 Main St.
DENVER, 220 Sixteenth St.
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LOS ANGELES, 932 So. Main St.

The Goodyear Tire and Rubber Company
Grove Street, Akron, Ohio.

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HAYNES Master Clutch

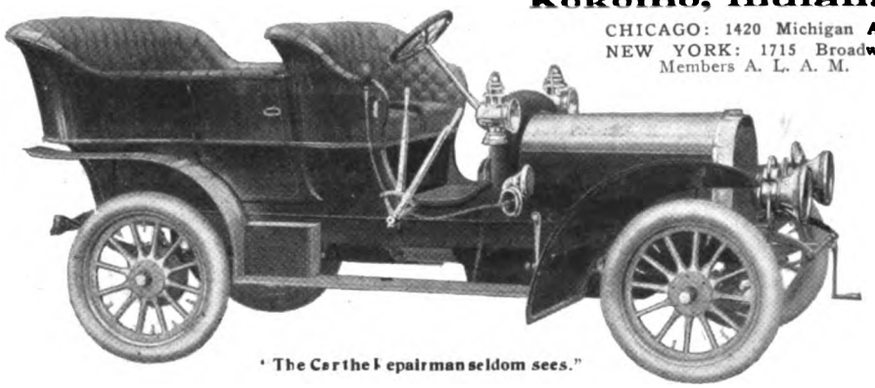


In the HAYNES Master Clutch a cam controlled by a foot lever constricts a band which is keyed to the transmission shaft, on the face of a 10¼-inch pulley, the four forked arms of which extend to the inner rim of the fly wheel, on which are cast four lugs, one resting between each fork. Very stiff coil springs are fitted one on each side between the lugs and the forks. The stiff coil springs effectually cushion the transmission, driving mechanism and all keys from the shocks and racking effect caused by the sudden application of high power, and greatly prolong the life of the entire machine. The operator can "pick up" the car without a jar or tremor, a sudden jerk, as is common with the cone and several other types of clutches, being impossible.

The HAYNES is the highest-powered shaft-driven car built. In requesting catalogue for prompt attention, address Desk D 20.

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"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5½x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,000 f. o. b. Kokomo. Full equipment.

Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs 4½x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.

POWER

At this stage of automobile development, the power transmission by chain is most popular.
Properly cut sprockets, and the best and strongest chain in the world.

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Which is made of self-haidening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

The matter of repairs and replacements is simple.

YOUR CHOICE.

The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars. **Special chains to fit Indian motorcycle.**

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Made in the shape they assume in service, relieving strain on the fabric.

NO LOOSE COVERS

Fitted with a flap, giving a perfect seating for the inner tube.

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Made with a raised tread, giving added wearing surface.

Why not buy THE BEST TIRES when they cost no more than others.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

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The Incomparable WHITE

The Car for Service.



ANOTHER BIG VICTORY ABROAD.

The annual open hill-climb of the Midland Automobile Club held June 16th, the the biggest event of the kind in England, resulted in a clean-cut victory for an 18 h. p. White steamer. The White climbed the hill six seconds faster than any of its 34 competitors which included all the best-known English, French and German cars, the ratings of which ranged up to 60 h. p.

Thus is added another to the long string of White victories abroad which commenced with the winning of the English Reliability Trials in 1902.

Write for new testimonial booklet.

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CLEVELAND, OHIO

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MODEL G.

There's the maximum of enjoyment and minimum of care and expense in a 2-cylinder gasoline car whose cardinal points of value have been proved by a season's use, and whose details of design, construction and equipment have been improved in accordance with the suggestions that come only with experience.

If you want a car for yourself or for family use, dependable, easy running, a good hill climber and efficient in the broad sense of the term, a machine you can drive and care for yourself, you cannot offord to overlook the Pope-Hartford Model G, which gives unusual value for the price.

Body: Divided front seat and double side entrance tonneau. **Seating capacity:** Five. **Motor:** 2-cylinder opposed, located under the hood. Horse power, 18. **Ignition:** Jump spark. **Transmission:** Sliding gear, three speeds forward and reverse. **Drive:** Shaft with bevel gears. **Brakes:** Double acting brakes expanding in drums attached to each rear wheel hub; double acting band brake attached to rear of transmission shaft. (With top $100 extra.) **Price, $1,600.**

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Pope Manufacturing Co.

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Members Association of Licensed Automobile Manufacturers.

THE

Foster Shock-Brake.



The FOSTER SHOCK-BRAKE works like a door-check. Lets you down just so easy and prevents you coming up too fast.

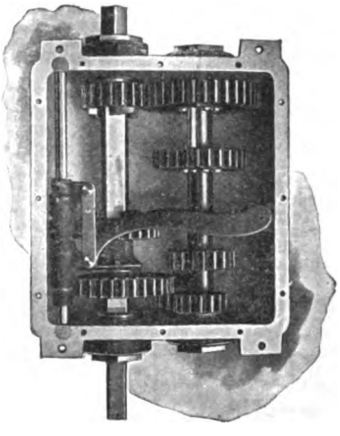
Eliminates broken springs and enables you to get the maximum of comfort from the use of your automobile.

Ask for circular and price.

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Irreversible Steering.

Bevel and Chain Drive Differential.

Many Sizes and Models.

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Columbia

MARK XLVII, 40-45 H. P., $4,500 to $5,500.

STILL WINNING!

At the meet of the Washington, D. C., Automobile Association, Saturday, June 16th, **Mark XLVII. 40-45 H. P.** fully equipped, driven by C. J. Hurst, won first prize in the five mile $4,500 class race and second prize in the five mile free-for-all race, beating five other cars of prominence.

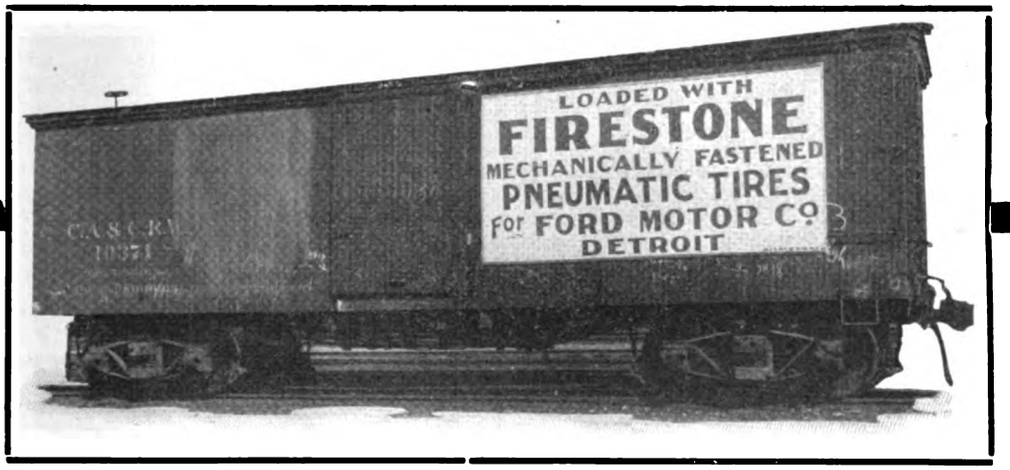
Mark XLVI 24-28 H. P. fully equipped, driven by E. C. Bald, won first prize in the five mile $3,000 class race.

MARK XLVI, 24-28 H. P., $3,000.

MADE BY Separate catalogues of Columbia gasolene cars, electric carriages, and electric commercial vehicles on request.

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From a photo of the first car-load shipment on the largest bona-fide single order ever placed with any tire manufacturer in the United States.

Such large orders are placed only after a thorough demonstration *in actual use* by practical automobile manufacturers.

The Firestone Pneumatic is not a substitute for the clincher, but its *superior*.

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To go, To get home, To be safe when you are speeding, For long tours—no worriment—no defective rubber, no rim cuts—nothing cheap. The best is not too good for you.

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ROYAL TOURIST

FAMOUS?

ASK AN OWNER.

ROYAL

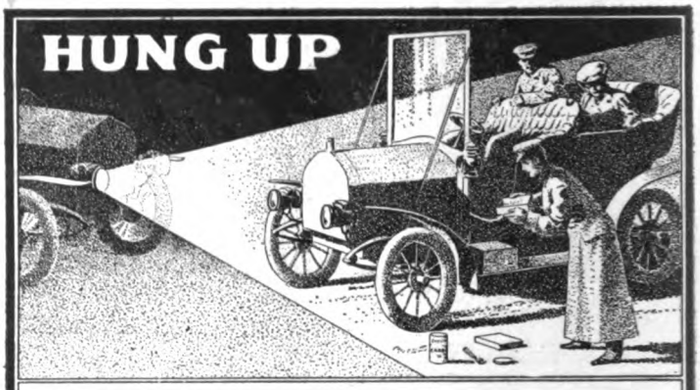
Model G. $3500.00 40 H. P.

THE ROYAL MOTOR CAR CO.

Cleveland, Ohio.

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Member A. L. A. M



Ever see anything like what's happening to the man on the right, Mr. Motorist?

And, when a man pays from $1,000.00 to $5,000,00 for a Motor Car, with an engine worth a fifth of the whole cost, body worth a tenth, wheels a twentieth and so on—all equally necessary to giving him the pleasure he expects to get for his money—isn't it just a little inconsistent to economize(?) on light which costs but 1 per cent. of the total outlay, and a risk of 50 per cent. of all the pleasure?

For the best light apparatus costs only about one hundreth part as much as the rest of the car and on it depends just about one half of all the enjoyment you can expect to get. Any Motorist will tell you that there is nothing to compare with the exhilaration of a speedy night ride.

But you cannot really enjoy it unless you have confidence and are without thought of danger. Clear light on the road is your protection against accident. With it, you are sure—confident. Without it, fear handles your steering gear.

And the one and only way to be sure of good, clear, dependable light always is to get your gas ready made and ready to use.

Send for our Prest-O-Lite book "Ready Made Gas for Auto Lights" and read how you can really economize on light and, at the same time, be rid of jiggling carbide forever. There are over 11,000 Prest-O-Lite tanks in use to-day and over 400 Recharging Stations in the United States. You can exchange empty tanks for full ones at any of the stations by paying the cost of re-charging, and the charge can be made in five minutes.

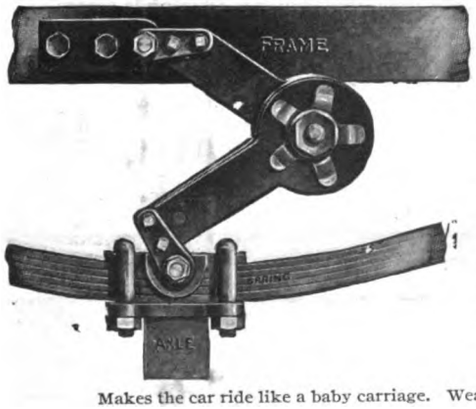
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TRADE MARK



Increases the speed and prevents lost traction.

Obviates the necessity of slowing down for obstructions.

Absolutely prevents breaking of springs.

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Self adjusting—Requires no attention.

Makes the car ride like a baby carriage. Wears longest.

Immediate Deliveries.

Adopted by the Pierce Great Arrow, Locomobile, Matheson, Richard-Brasier, Peugeot, Napier, Gobron-Brillié, Studebaker, Aerocar.

Cars under 1500 lbs. $40 (four suspensions)

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WARNING

We are the owners of fundamental patents entirely covering every practicable form of frictional retarding devices for vehicle springs, and hereby warn the trade from handling any infringing device that may be offered for sale. We also warn the trade against the use of the term "**Shock Absorber,**" which is our Trade Mark.

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"THE FINEST AUTOMOBILE IN THE WORLD."

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Recognized as the most satisfactory means of ignition.

Now used and endorsed by 52 of the leading automobile and motor boat manufacturers.

Every battery guaranteed to give satisfaction or purchase money refunded.

Write for descriptive pamphlet.

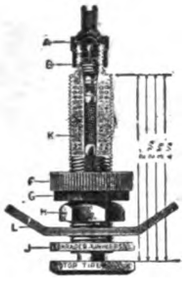
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SIMPLE AND ABSOLUTELY AIR TIGHT.

MOTOR TIRE VALVES, as shown in cut, are made in four lengths as shown. Cut is exactly half size of the 2 in. valve.

SUPPLIED TO THE TRADE BY ALL TIRE MANUFACTURERS.

MANUFACTURED BY

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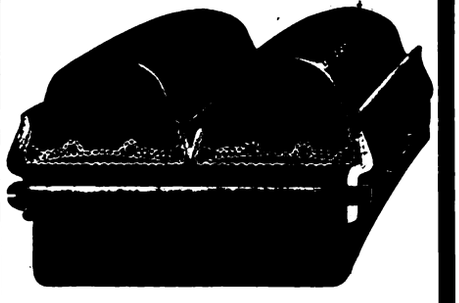


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FOR LIGHT WORK

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SOLID TIRES



TWIN
FOR HEAVY WORK

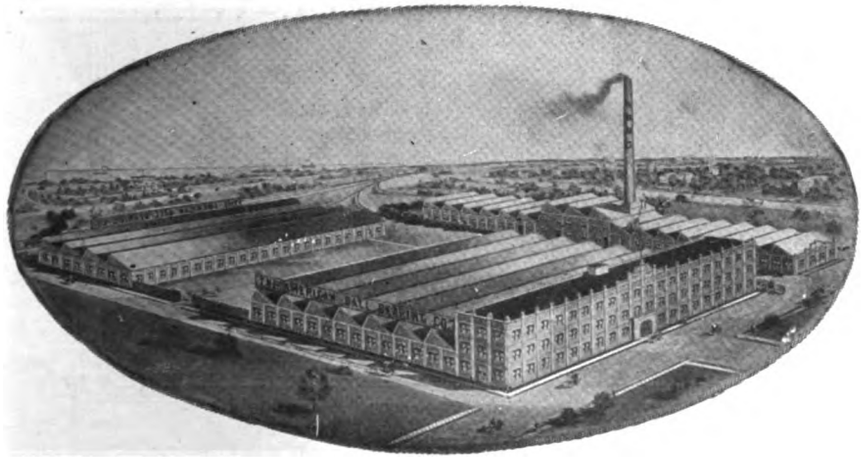
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The successful commercial vehicle tire must have its retaining device vulcanized inside the tire, otherwise the attachments rust. The HARTFORD is secure and rust-proof.

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The output of complete Front and Rear Automobile Axles of this plant exceeds the capacity of all competition combined.

THE American Ball-Bearing Co.

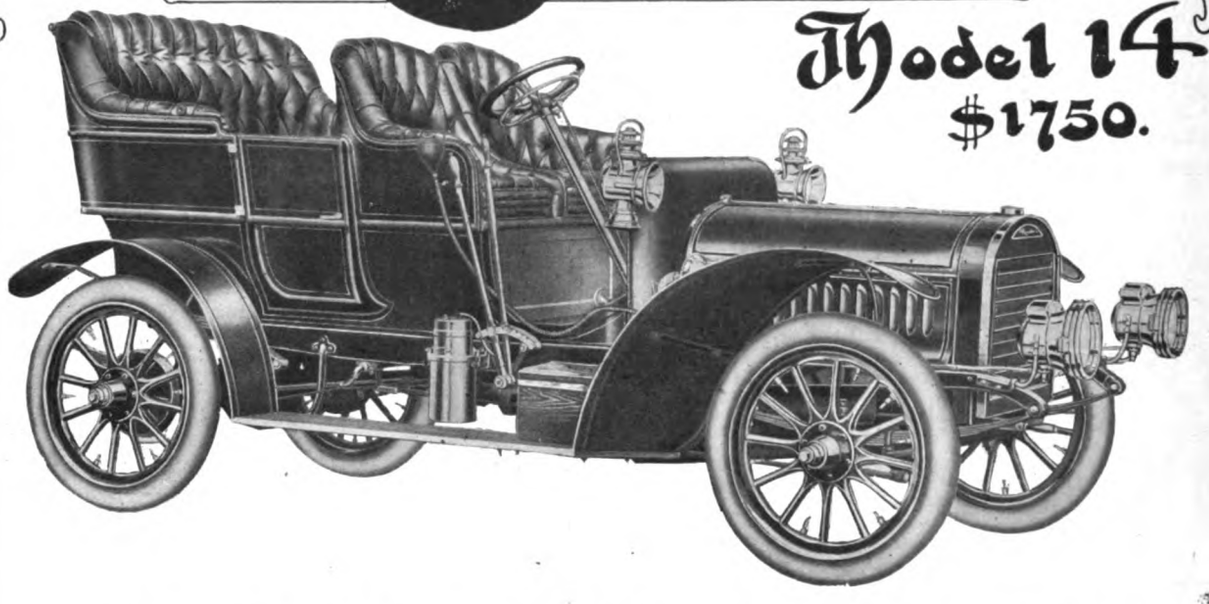
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Rambler

Model 14
$1750.



A medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, June 28, 1906. No. 4

MUST PAY FOR NON-DELIVERY

United States Court Delivers the Decision—Much Mixed Interests Involved.

A suit of some interest was decided last week by Judges Ross, Gilbert and Harvey, sitting in the Circuit Court of Appeals of the United States, at San Francisco. The action was brought in the courts some years ago by the Auto Traction Co., of San Jose, as plaintiffs against the Universal Automobile Co. and the Aetna Indemnity Co.

In 1904 the Universal Automobile Company, which was then manufacturing automobiles in California, agreed with the Auto Traction Co. to supply a number of machines for $4,500, the delivery to be made within a certain period. The agreed price of the machines was promptly paid, but when the time came for the delivery of the machines, they were not forthcoming. Judge Rosenthal, of San Jose, representing the Auto Traction Co., went to San Francisco and demanded that the machines be at once furnished or the money returned. As a result of this interview, the Aetna Bonding Company gave its bond whereby it guaranteed that the machines would be delivered within a short time afterwards or the money refunded.

Neither agreement was kept, and as a result suit was brought in the Superior court at San Jose, in the name of the Auto Traction Company.

The Aetna Company was a Connecticut corporation and the Universal Automobile Company was a South Dakota corporation. As the defendants were foreign corporations, they promptly had the case transferred to the Circuit Court of the United States, presided over by Judge W. W. Morrow. After various hearings before Judge Morrow, the case came on for trial before Judge William H. Hunt, of Montana, who rendered judgment in favor of the Auto Traction Co. A new trial was asked for, and this matter was decided in the same way by Judge James H. Beatty, of Idaho.

In the meantime the Universal Automobile Co. went into bankruptcy, but still insisted that it could keep the money and not deliver the machines. That attitude forced the matter up to the Aetna Company, and an appeal was taken by it to the Circuit Court of Appeals of the United States, which is presided over by Justice McKenna of the Supreme Court of the United States. The final trial before this tribunal was had some time ago, and last week the decision was handed down sustaining the various other decisions rendered and holding the bonding company responsible for the entire amount. The court held that it was an extreme hardship to force the Aetna Company to pay the debt of an insolvent, but decided that having given the bond, it could not escape liability by pleading or proving any technical defenses.

To Make Cars in Paterson.

The Watson Machine Co., Paterson, N. J., an important machine shop, is preparing to embark in automobile manufacture, and is so far advanced that its first car will be running within three weeks. It will be of 35-40 horsepower and will be styled the Watson-Conover. Something new in the way of a change gear will constitute one of its features.

"Motor Car" will Replace "Mfg."

On July 1st, the Northern Mfg. Co., Detroit, Mich., is to become even more intimately identified with the automobile industry, which is to say that on that date it will become the Northern Motor Car Co. The change will be confined to the name only. Officials and all else will remain exactly as heretofore.

Speirs to Superintend Wayne.

John C. Speirs has "signed up" with the Wayne Automobile Co., Detroit, Mich., as factory superintendent. His ripe experience with the Locomobile, Autocar and Midgley companies in a similar capacity cannot well fail to serve the Wayne interests to good purpose.

Brandt Parts from Fisk.

E. H. Brandt, general traveling representative of the Fisk Rubber Co., has resigned that position; his successor has not been selected.

DAIMLER FILES MORE SUITS

Strikes at the Millionaire Element—The Patents and Points Involved.

Although they have instituted a number of similar proceedings during the past year, because of the great prominence of those against whom they were directed, actions brought on Tuesday last by the Daimler Mfg. Co., and C. L. Charley, their "concessionaire exclusif" for the sale of the Mercedes car in this country, resulted in bringing the several Maybach patents into the strong limelight.

The defendants are Cornelius Vanderbilt, John W. Gates, Henry C. Phipps, Harry B. Hollins, Alfred V. Brokaw and Jesse Lewinsohn. By bills in equity filed in the United States Circuit Court, an injunction is prayed for restraining each of them from the use of their Mercedes cars, "which were not bought of either the American agent, the manufacturing company or from any predecessor in ownership who bought them from the plaintiffs" as the complaint reads.

The American patents involved are No. 686,100, covering a safety locking device on a change speed gear of the selective type, granted Nov. 5, 1901; No. 688,108, on an improved form of brake, granted Dec. 3, 1901, and No. 709,416, on a radiator or "cooling and condensing device" granted Sept. 16, 1902; also one covering a "new and useful improvement in motor vehicles" which is numbered 703,436 and was granted July 1st, 1902. All of these patents were assigned to the Daimler Mfg. Co., of Long Island City, in February, 1904. However, the foundation of the proceedings does not rest directly upon an infringement of the patents themselves as the cars purchased by the defendants are the genuine product of the home factory in Germany.

As stated in the complaint, the cars have been purchased in Europe and imported to this country in violation of the rights of the sole licensee, C. L. Charley, to sell the Mercedes machines on this side of the Atlantic. The cars thus brought into the country by the defendants incorporating the patented features referred to, the suit is

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based on the allegation that the patentee's rights are being infringed. A hearing to compute damages is prayed for as well as an injunction restraining the further use of the cars by the defendants.

These actions have become such a matter of course with the Daimler Co. during the past two years that their counsel, Taylor & Anderson, have had bills of complaint incorporating the particulars of the cause of action printed by the hundred, and as often as an offender is located, the blank spaces are filled in with his name, the date and similar current requisites and the complaint immediately filed. More than a score of such bills of complaint have been filed during the period in question and in every case the defendants have recognized the futility of contesting the matter under the circumstances and have settled, or, in other words, bought license tags and paid the needful therefore. One exception to this was Roland Conklin, who demurred to the complaint filed against him last week, but the demurrer was promptly overruled by Judge Hazel and he likewise settled as the batch of defendants now being proceeded against are also expected to do.

"It is simply a case of settle or be deprived of the use of the car until the patent has been litigated and either sustained or declared invalid," said one of the firm of Taylor & Anderson, when seen on the subject. "Patent suits are long and wearisome to the man who is awaiting their outcome and this one will be no exception to the rule. If the patent is sustained, which will in all probability be the case, the defendants will have to pay up anyway."

Weston-Mott Makes Ready to Move.

The Weston-Mott Co. is now making ready for removal from Utica, N. Y., to Flint, Mich. The new plant at the latter place will be completed and the machinery be installed by July 15th.

The organization of the Michigan Company was completed last week at Flint, when the articles of incorporation were signed. They provide for a capitalization of $500,000—$400,000 issued at once, and $100,000 to be retained in the treasury of the company; the present members of the Weston-Mott Company, Utica, N. Y., taking $300,000 of the capital stock, and residents of Flint $100,000, divided among some twenty-five different people. The officers of the company will be: President, C. S. Mott, who is president of the Weston-Mott Co., of Utica; vice-president, Hubert Dalton, who is present superintendent of the Weston-Mott Co., of Utica, and secretary and treasurer, Williams G. Doolittle, who is the present secretary and treasurer of the Weston-Mott Co., of Utica. C. S. Mott was elected general manager, and Hubert Dalton factory manager of the new company.

The Reo Motor Car Co., of Lansing, Mich., has declared a dividend of ten per cent. This makes the second dividend within a year.

The Week's Incorporations.

Chicago, Ill.—Federal Automobile Co., under Illinois laws, with $25,000 capital; to manufacture automobiles. Corporators—Albert Buchner, Edward P. Richter and James J. Waters.

Trenton, N. J.—Trenton Auto and Transit Co., under New Jersey laws, with $50,000 capital. Corporators—J. M. Murray, C. F. Weick, Jr., and C. D. Clayton, all of Trenton.

Brooklyn, N. Y.—Flatbush Motor Car Co., under New York laws, with $6,000 capital; to conduct garage. Corporators—D. M. Boe, J. N. Botts, A. C. Rupprecht and L. Rupprecht, all of Brooklyn.

Elmira, N. Y.—Willys-Crew Motor Co.; under New York laws, with $5,000 capital; to manufacture motors, engines, machinery, etc. Corporators—J. N. Willys, W. O. Crew and G. W. Shoemaker, all of Elmira.

New York City, N. Y.—Chevrolet-Kenen Auto Co., under New York laws, with $5,000 capital; to manufacture motors, engines, etc. Corporators—C. Kenen, Louis Chevrolet and W. Moffat, all of New York City.

St. Louis, Mo.—Central Automobile Exchange and Supply Co., under Missouri laws, with $10,000 capital, half paid. Corporators—Charles W. Shevlin, John W. Shevlin, Henry H. Artz and Sylvenus Shevlin, all of St. Louis.

Boston, Mass.—Boston Auto Garage Co., under Massachusetts laws, with $200,000 capital; to manufacture and deal in all commodities used in forming automobiles and motor boats. Corporators—C. Smith, treasurer, Worcester.

Sandusky, Ohio.—Triumph Automobile Wheel Co., under Ohio laws, with $12,000 capital; to make automobile wheels. Corporators—Leverette L. Curtis, Christian A. Rittman, John Whiteworth, Arthur M. Spore and Byron A. Crosier.

Toledo, Ohio—Toledo Repair and Fittings Co., under Ohio laws, with $10,000 capital; to repair automobile tires and deal in accessories. Corporators—John V. Todo, George R. Jaynes, William F. Radbone, Ed. Beardsley and Mark Winchester.

Eby to Make Resilient Wheels.

Believing that there will be a future demand for resilient automobile wheels, the Eby Mfg. Co., Omaha, Neb., is negotiating for the erection of a plant to be devoted exclusively to the manufacture of this article. The company will make the De Jarnette spring wheel, the invention of F. De Jarnette, of Omaha.

With a South Dakota Million.

Harvey A. Williams, a mechanical genius of Akron, Ohio, believes he has invented an automobile which embodies enough radical features to warrant the formation and capitalization of a million-dollar company to manufacture automobiles. Application accordingly was made in South Dakota last week for the incorporation of the Williams Motor Carriage Co. Harvey Williams, George W. Phillips, Edw. M. Grantham, Harvey Mussmer, Henry Robinson and John F. Townsend are named in the papers.

Buick Sprouts $1,000,000 Branch.

Having concentrated at Flint, Mich., the Buick Motor Co. does not propose that its plant at Jackson shall remain idle. This was made plain this week by the organization of the Whitney Motor Co., of Jackson, will will be in reality a branch of the Buick tree. The new company will be capitalized with $1,000,000, of which, it is stated, more than $500,000 already has been paid in. An addition to the present buildings will be made and additional machinery installed. The new company expects to be located by August 1. The officers elected for the Whiting Motor Car Co. are: President, J. H. Whiting; vice-president, C. M. Bigol, and secretary-treasurer, W. C. Durant, who is also the active man in Buick affairs.

To Make Dragons in Detroit.

F. S. Corlew has resigned as salesmanager of the Oldsmobile Company's Boston branch, and has organized the Dragon Auto Co., for the purpose of manufacturing automobiles, the factory to be located in Detroit. His intention is to put on the market for 1907 a four-cylinder roadster, shaft drive, sliding transmission, wheel steer, 20-24 horsepower, to sell for about $1,000, and also a light touring car to retail at about $1,250. The company expects to have demonstrating cars on the road by August 15.

Brake Company Locates in New York.

The Standard Brake Co., which is manufacturing in New York an automatically adjusting metal to metal brake running in oil, has opened offices in the Colonial building, at Broadway and Sixty-sixth street. Clarence McKenzie is president of the company; Maurice Mormack, vice-president and Fred C. Cormack secretary-treasurer.

New Italian Car Coming.

Another Italian car, the F. A. I. F., is to make its appearance in this country under unusually favorable auspices, those of Smith & Mabley. The New York concern has obtained the American agency for the car, which takes its title from the initials of its makers, the Fabrici Automobili Isotta Fraschini, of Milan.

Van Derhof goes with Ford.

F. C. Van Derhof has gone from tires to cars—from the management of the Fisk Rubber Co.'s Cleveland branch to similar duties as manager of the Ford Motor Co.'s Philadelphia depot.

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MASS MEETING DISCOUNTED

New York Dealers—Some of Them—Discuss Tender Subject but all is not Serene.

Although there are something like 80 different makes of cars handled in the metropolis, most of them by agents, only 26 of them were sufficiently interested in the matter of larger discounts from the manufacturers to attend the mass meeting called for the purpose by the New York Automobile Trade Asociation on June 21st And of these but 12 were agents, 2 were accessory dealers, 6 were garage proprietors, 2 represented branch houses and 3 were the direct representatives of the makers.

The overwhelming expenses attendant upon carrying on the business owing to exhorbitant rents, chauffeurs' commissions, salesmen's salaries and the like, and more than all these the great outlay required to do business at all in the face of the strenuous competition that the great number of cars now on sale in this city has brought about, formed the topic of a two hours' discussion. After it had been threshed out to the satisfaction of the most belligerent of the gathering, the majority of opinion favored discarding the brass band tactics. It was decided to there was no necessity of making any hullabaloo and that if things were taken in an orderly businesslike manner, the makers could be made to appreciate the situation much better.

That the New York agent has to bear the greatest burden of advertising expense, pay the highest rental and wages, pay a large part of the cost of entering competitions, and that on top of it all his contract was usually revocable under a thirty day clause and accordingly carried no good will to make it collateral with the banks, were some of the pleas put forth by the various speakers. And it was the concensus of opinion that a car's success in the metropolis contributed largely to the making of its reputation throughout the country. According to one dealer, representatives of other lines, and particularly those handling carriages, ridiculed the idea of doing business on such a close margin. The representative of a branch house attacked the system of feeing the chauffeur and others who introduced customers and said it would prove a pretty poor argument with the manufacturer. Several dealers were immediately eager to enter into an agreement not to pay such commissions, and declared their willingness to advertise the fact in every possible way.

The most bellicose advocate of higher commissions ignored the question of expenses, chauffeurs' commissions and the like, but rose in a flight of oratory on the downtrodden condition of the automobile dealer.

"They are men of a high calibre," he declaimed, "and should not be in the business merely to make a living, but had a right to make and lay by money for their old age." He called upon the assembled meeting to "strike now." But the majority opinion that prevailed was of a more sober hue and the chairman was finally directed to appoint a committee to confer informally with the manufacturers, and suggest at some future meeting, a definite course of action.

In view of the situation, it might be supposed that the New York trade as a whole was agog over the matter, but a Motor World man found quite the contrary to be the case. Percy Owen, of the Aerocar Co., as president of the association, was naturally conversant with the entire history of the movement, but there was a noticeable lack of interest in it in other quarters. And he was more anxious that the whole matter should be permitted to die a peaceful death rather than suffer further exploitation.

"The whole thing was a rank piece of indiscretion," was his comment. "and what was worse, was the admission of newspaper men. The thing never should have been made public. Why, it's just as if you and I went around looking for a raise of salary with a brass band.

"The publicity given it has done more harm than good already. A customer who has just learned that the dealer gets 20 per cent. discount, comes to him and says: 'Why on a car costing $5,000 you get a $1,000 commission. That's an awful lot of money to make on a single sale. Altogether too much.' The first thing you know the business will be on a par with soliciting life insurance; every buyer will want the dealer to split commissions with him or give him a rake-off, and I've seen symptoms of it already."

Mr. Owen is reputed to be one of the mildest mannered and most gentlemanly of dealers in the city, but it was evident that last week's proceedings had stirred his wrath to the depths.

When C. A. Duer was questioned on the matter he naively inquired: "What meeting? No, never heard of it. I don't go to any of the meetings. Oh yes, we are members of the association but I have troubles enough of my own."

"No, I was not at that meeting," replied Carl Page, of the White Company, when questioned similarly. "I took particular pains to make it my business not to be there."

"You're one of the Board of Governors of the association?" was suggested.

Mr. Page admitted the accusation, but said he wasn't there and had no idea of what transpired, except from newspaper reports and he had not been particularly interested in them.

"Ours is a branch house," he continued, "and naturally the matter does not directly interest us on that account, but, like every other house, we have dozens of agents and we don't want them to be rising against us. If we sanctioned this movement we would be putting our seal of approval on it, and putting our foot in it at the same time."

RIPPING TIME IN CHICAGO

Axes and Picks Play Active Parts and Many Garages Lose their Fuel Supply.

Chicago's superintendent of streets and building commissioners meant business when they issued their manifesto of last week against the use of gasolene tanks buried on public property, practically every public garage in the city violating this provision, as well as that with regard to the quantity permitted to be stored, which is 50 gallons. They followed it up with action "hot off the bat."

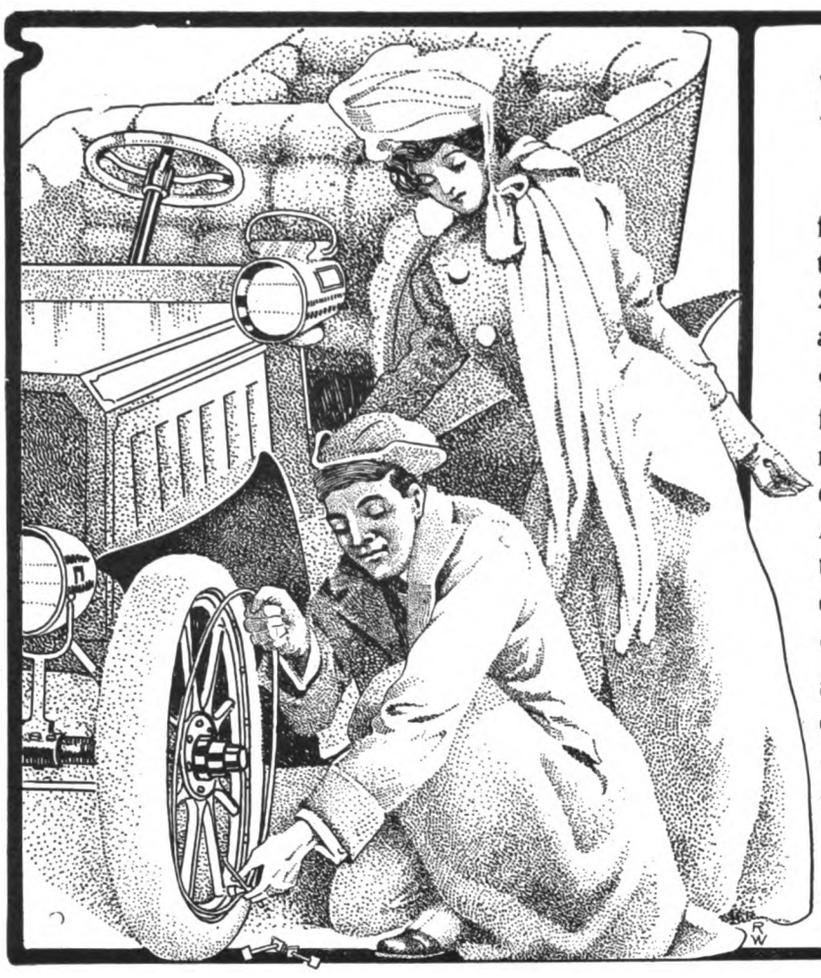
Armed with an oil tank wagon, several wagon loads of cinders and a force of 25 men, Superintendent of Streets Doherty descended upon automobile row along Michigan avenue, on Friday last, and brought consternation to garage proprietors along the Windy City's automobile mart. As a result, there were many establishments who were unable to meet Saturday night and Sunday morning calls for gasolene. Picks, shovels and crowbars made short work of the covering of a tank wherever one was found on public property, the metal cylinder was hoisted to the sidewalk, loaded on a truck and one of the fleet of wagons deposited its load of cinders in the cavity. Many of the garage keepers pleaded that their business would be ruined and asked for more time, but their appeals were in vain.

The tanks of the White Co., at 240 Michigan avenue, 300 gallons; the Pardee Ullman Co., at 1218 Michigan avenue, 300 gallons; the Orlando F. Weber Co., 1320 Michigan avenue, 100 gallons; the Oldsmobile Co., 1328 Michigan avenue, 300 gallons; the Electric Vehicle Co., 1332 Michigan avenue, 280 gallons, and that of the William Herrick Co., at 1344 Michigan avenue, holding 300 gallons, constituted the afternoon's work and gave others in the same predicament an inkling of the fate in store for them.

The city forces renewed the campaign of destruction early the following day, but were soon compelled to desist, owing to a writ of injunction issued at the instance of the Electric Vehicle Co., C. A. Coey & Co., Orlando F. Weber & Co., the Pardee-Johnson-Hamill Co., and the White Sewing Machine Co., restraining the city from interfering with the gasolene tanks located on their premises. While the writ only applies to the firms joining in the petition, it is expected to halt the work of removal until the matter has been passed upon by the courts. The contention is that the alleys have never been legally taken over by the city and on that account are still private property, although dedicated for certain purposes to public use. The issue of the injunction and its immediate effect caused rejoicing "along the row."

But Chicago has come into possession of six new steel tanks and a quantity of gasolene which will be sold cheap.

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for the Simplicity and Ease with which they can be repaired, for their Positively Safe Rim Attachment, their Comfort, and their Long Service Qualities.

¶ Fisks cannot roll on the rim. It is so firmly secured that there is absolutely no chance for it to creep—as other tires do. Its inner tube cannot get pinched. All the air in a Fisk is entirely above the rim, making the one perfect wheel cushion.

¶ They are now recognized everywhere as The Standard for Sterling Excellence of Design, Material and Construction.

¶ We would like to send you an article on the subject of different tire constructions.

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There is no motor car at any price that will give so much actual motor car value for every dollar invested as a

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There is no motor car at any price that is less expensive to maintain than a

SINGLE CYLINDER
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There is no motor car at any price that will climb any hill that cannot be climbed by a

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CADILLAC

There is no motor car at any price that will travel any road that cannot be traveled by a

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Chauffeur Problem Solving Itself.

That the much mooted and one time troubulous "chauffeur problem" is now in a fair way to final settlement, would appear to be the case. And that its accomplishment had come from the double result of improving the automobile mechanically, and educating the former coachman to take his place behind the wheel, also seems to be a rational conclusion. At all events, it is apparent that with the growing completeness of the better types of car, the need of skilled attention in the way of repairs and ordinary maintenance is diminishing, while the facilities for obtaining careful and competent repair work in all the greater towns are increasing. This, alone, makes the business of "chauffeuring" less of a trade as time goes on, and more an occupation requiring devotion to duty and a degree of fidelity in matters of detail hardly within the scope of the mechanic's trade, such as the coachman is especially fitted to perform.

It has been said again and again that the coachman is in no wise able to cope with the difficulties which are bound to arise sooner or later, and, on the other hand, it has been argued that he is better fitted for the work than any other class of operatives, being imbued, first of all, with some measure of comprehension of his social position and, second, with fidelity. Needless to say, the second argument emanates almost wholly from the owners as a class, while the objection invariably is raised by the chauffeur himself, whose own past, be it said in generalization, is a closed book.

But whatever may be the ethics of the case, the fact remains that each year is seeing a greater number of graduates from the stable to the garage. Incidentally, this involves better kept coachwork on the cars, cleaner men on the box, and, in the main, no less efficiency on the part of the mechanism, although the actual cost of shop repairs may be higher than before. Also, it involves a feeling of tremendous unrest among the real mechanics who have earned the title by hard work, and are able to do well any work which may have to be done about a car.

A factor which has contributed largely to this growing favor of the stable-trained chauffeur, is that of the automobile school of instruction where is taught practically, and it is to be hoped well, all that is essential to an understanding of the principles of good driving. And, be it said, without discredit to the coachmen themselves, their increase in the ranks of professional drivers is largely at the instigation of the owners. For in them, they have a solution of the problem of the unsatisfactory and dictatorial chauffeur with his self-importance and his impressive idea of his own worth.

No man can drive so well as one who is able to make every part of a car himself, and who, besides, is possessed of that indefinite something, akin to mental balance, which goes to make a good chauffeur. But for ordinary driving, for town work, for ordinary touring, and the routine of suburban travel, all this is by no means an essential, however desirable it may be. Hence, the fully trained chauffeur-mechanic may be regarded as something of a luxury in more ways than one, and hardly an essential. It is a bitter pill for such men to assimilate, the idea that theirs is no longer a preferred occupation, yet it is a fact. They need have no great cause for alarm, however, as there is left for them the whole broad field of the trade, where their talent is badly needed. And there, if they but seek it diligently, is a far better reward than that which is to be gained by lolling behind a steering wheel, or loafing about a garage waiting for orders.

The Six-Cylinder Car.

It is apparent from the trend of affairs that the six-cylinder car is to attain considerable prominence during the 1907 season and that it is one of the subjects of trade thought at this time. What the result will be cannot be foretold.

Viewed as another step in the long chain of experiments looking toward the evolution of a motor that will be possessed of extreme flexibility and uniform torque, the six-cylinder motor has numerous advantages. Three explosions per revolution distributed over points of the circumference set 120 degrees apart, are naturally more conducive to this result than two explosions in the same time 180 degrees apart. It must also be conceded that the advantage thus obtained brings the "gearless" car a step nearer. It is manifestly out of the question to construct a general service car with but four cylinders possessing this attribute. The most flexible four-cylinder engine made is not equal to the task of meeting all sorts of roads and grades without the aid of gearing. Experiments with six-cylinder cars have shown a closer approach to this ideal than has hitherto been obtained.

But what does it cost to obtain this end? That is the question that must definitely settle the approaching controversy between the advocates of four and six cylinders. Though the six-cylinder motor costs more to build, initial expenditure is not a factor of extreme importance for there will doubtless always be a choice of the two types at practically the same figures. Besides exponents of the greater number are not at all apt to hesitate at an increase in this item. The matter of increased cost of maintenance and repairs is what must prove the deciding element, for given equally favorable conditions throughout there can be little doubt that the six-cylinder car will cost proportionately more to maintain. This hardly can be disputed. Apart from the engine its mechanism will not differ materially, but it must be conceded that with each additional cylinder of the former there is added that much more complication and liability to breakdown, entailing a proportionately greater repair bill. The cost of fuel is likewise increased. When these

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and other disadvantages are compared with its advantages it will be apparent that the six-cylinder car cannot compete with its four-cylinder predecessor as an all-round service vehicle. There will undoubtedly be quite a number of six-cylinder cars sold next season and there seems to be every prospect that the type will hold more or less favor from now on. But that it will ever greatly affect the sale of the four-cylinder car or displace the latter is more than questionable; it is something, however, that the passing of 1907 seems destined to settle definitely.

The Limit of Standardization.

Standardization, a word which carries a note of joy to the heart of every mechanic and every engineer, has been a long-cherished dream of the motoring fraternity, has been expounded as a doctrine, taught as a theory, discussed as a possibility for many months, and, indeed, ever since the industry began to take shape as such, but always, it has been too remote for present realization. There have been too many other matters requiring the immediate attention of the engineers, and it has been set aside. Now, however, the action of the Association of Licensed Automobile Manufacturers in actually inserting the entering wedge, seems likely to bring about the desired state of affairs within a measure of time.

This standardization is not that sort of thing which makes for sameness in the cars and their components. On the other hand it merely breeds an understanding between the makers which will carry benefits similar to those accruing from the adoption of standard weights and measures, valuations of specie, or any other of the manifold systems which make for mutual convenience of those who work together and more or less in unison, albeit in rivalry, toward the same ends. The adoption of standard sizes for bolts, studs and screws, means that replacements may be obtained universally, and from any dealer, it means that the construction of the cars need not involve so extended a use of special machinery of production as hitherto, that the standard parts can be purchased in the open market by the maker without the necessity of stocking up heavily or ordering according to special designs, and by the same token, it means that the makers and dealers who handle the components, will have a broader range of action with a reduced amount of complication in production.

How far the process may be carried with profit, is a matter of doubt. The notion of arriving at a standard type of motor, for instance, so contrived that any part could be replaced at any shop in the land without fitting and without hitch, of any sort; that transmissions should be constructed along such uniform lines that they could be shifted about from car to car; or that any of the elements of the machine, mechanical or otherwise, should be so uniform that they could be assembled from the four corners of the earth with a couple of wrenches and a screwdriver, and so put together, produce an efficient machine; that is altogether an absurdity. In the first place, no such universal standardization ever could be arrived at, at least not without some bloodshed and a deal of personal strife over the conflict of original ideas, and in the second place, no one would have much use for a machine contrived on such an orderly principle. For the millenium would have arrived long before the standardization had become complete.

The probable limit of such an agreement is then, that its extension shall stop with the inclusion of all parts which are strictly common to all or a majority of types; that is to say; to fastenings, wheels, tires, overall dimensions, making interchangeable bodies a convenient possibility, and possibly, a further extension to include the mechanism of control, insofar as the arrangement of levers and steering gear is concerned, together with piping, and even methods of wiring, to a limited extent. Wherever the existence of such an agreement can be secured and maintained, direct and lasting benefits will result. Its ratification is a matter requiring the greatest of foresight and mechanical knowledge, together with a mental balance which will guarantee freedom from impractical results. The standardization of the smaller parts which are universal in their use, is a good and worthy beginning. But it is only a beginning. Other results must be sought until the working limit has been reached, and such systems as have resulted from the inquiry, put into effective action.

It is a welcome change when the makers come to take some measure of interest in the lubrication of the suspension of the car, especially since hitherto it has been allowed to care for itself. But when a maker goes the length of adding twenty little grease cups to the already plentiful number mounted on the chassis, it would seem that the "added refinement" of which he boasts, is of a questionable nature. There can be no doubt that the foreign car which has just been equipped in this way will be the better for the change, but that some less cumbersome method of effecting the desired end might have been contrived, would also appear to be the case.

Evidently the automobile manufacturers and dealers in Massachusetts did not satisfactorily answer the "What is there in it for us?" question which an ex-member of the legislature has stated is the question which governs the enactment of laws in the Bay State. At any rate, the suggestion is inevitable in view of the manner in which special provision is made for interfering with and practically suspending their business operations for violations of the law.

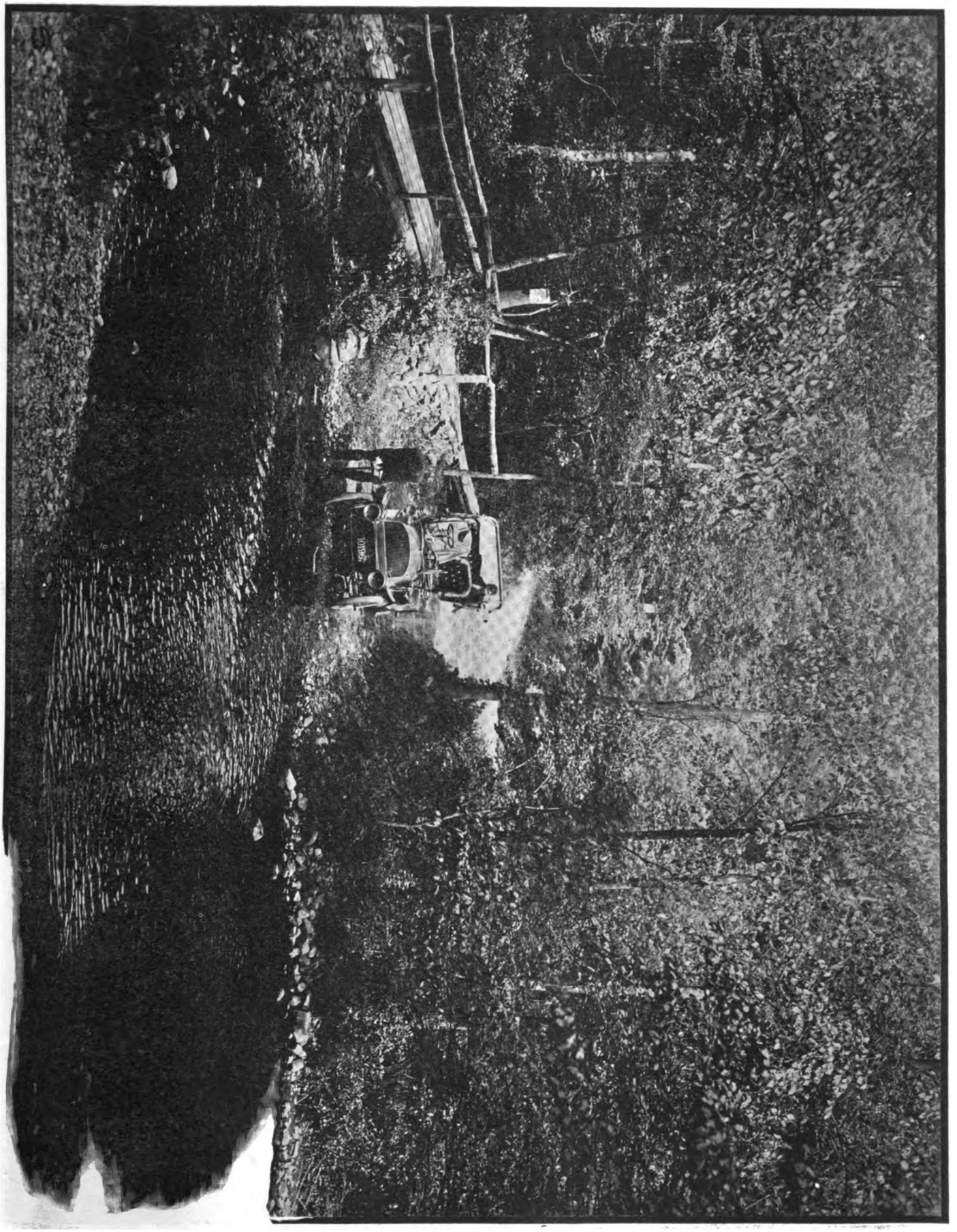
If the new law in New Jersey leads to the suppression of the "tin horn sports" who earn cheap newspaper notoriety by creating or breaking "records" between Podunk and Squeedunk, there is a lot of its inequity that may be forgiven. The action of the New Jersey officials in the case of the Philadelphia "sport" suggests that a way has been found at last to "land" that ilk.

It is somewhat of an anomaly that probably not even the legislator who first thought of the requirement can explain the raison d'étre, that the automobile is the only vehicle on the road that is compelled to show a red light at the rear. If the meandering buggy with its walking motive power were only compelled to show a light of any kind there would be no complaint.

That there are certain forms of publicity which cannot be made to show a profit would appear to be an axiom. But there are same things that it is not good for the public to know: and that one of these is the subject of manufacturers' discounts would appear to be the only concrete result of last week's slight effervescence in the New York trade.

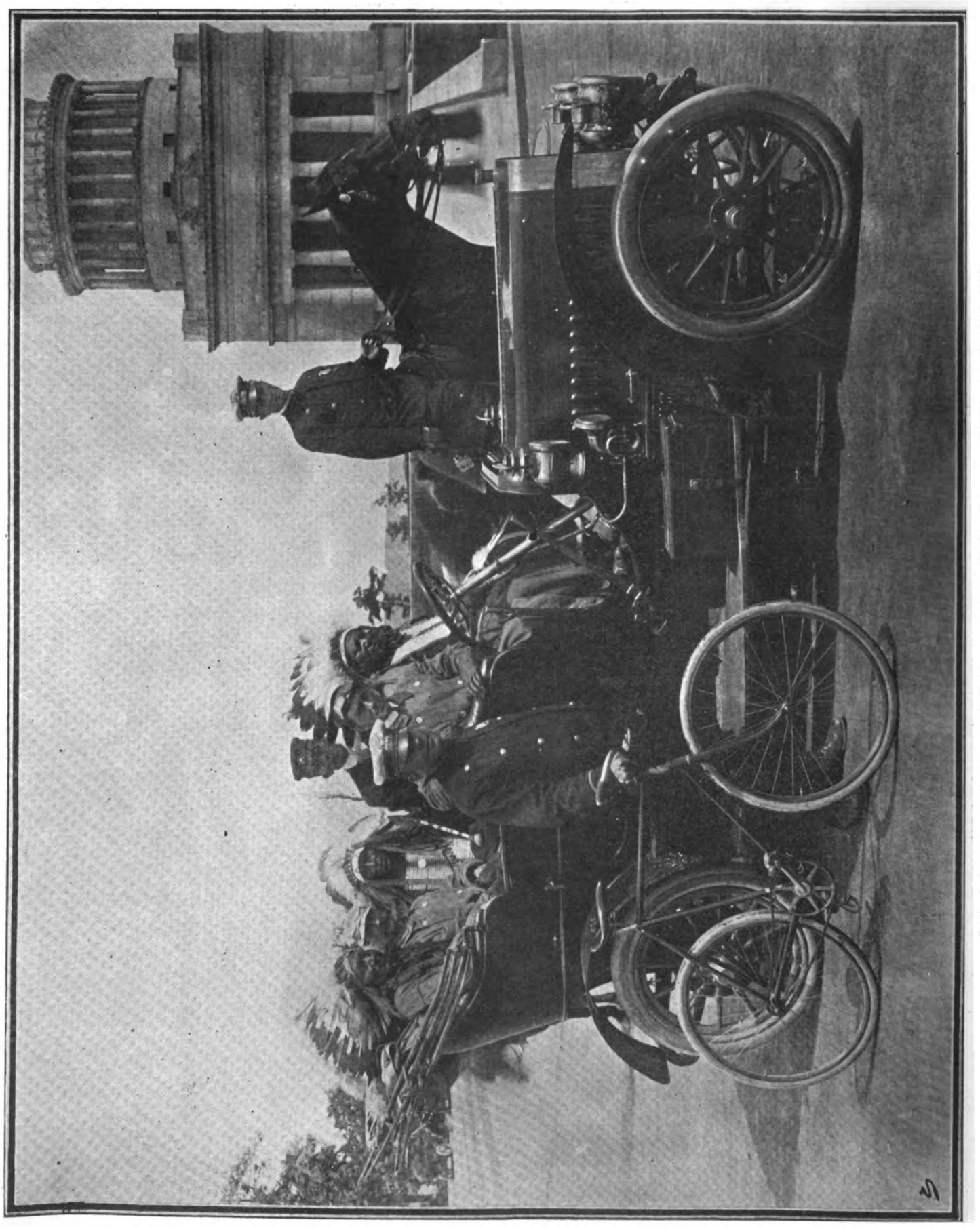
Along with the automobile, came the automobilist; with the motor, the motorist; and not content with that, we now have to deal with the autocarist and the motorcarist and even the autoist. But all the ists and isms in the whole category cannot serve to reduce the price of gasolene by the tenth of a mill.

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THE HALT AT THE BRINK OF THE BROOK.

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NEW YORK'S INDIAN VISITORS SUBJECTED TO A NEW EXPERIENCE.

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How France Won its own "Frame-up," the Grand Prix.



SZISZ (FRANCE) THE WINNER.



NAZZARO (ITALY) SECOND.

France should be deliriously happy. The Bennett cup race was not the French idea of true sport; it afforded a fair field and no favor—conditions that gave all countries that might compete an equal chance and led to the defeat of France. The Frenchmen did not relish that sort of sport. They believe in 100 to 1 chances with the 100 in favor of France. Accordingly, they set out to strangle the Bennett race and appear to have succeeded.

In its place they reared the Grand Prix in which was incorporated the French idea. It was "framed up" so that France scarcely could fail to win. The odds, that is, the number of entries, simply must be overwhelmingly in favor of France. The race was run on Tuesday and Wednesday, June 26 and 27. Twenty-three Frenchmen, six Italians and three Germans participated. Of course, France won. Despite the odds, an Italian finished second—but, anyway, France won. So why should not France and the French "sportsmen" be deliriously happy?

The race was on what is known as the Sarthe circuit, a triangular shaped course in the rugged country in the northwest of France. It was 103 kilometres, about 63 miles, to each lap. It was run on the installment plan, six laps being run on each day, the first car finishing on the first day being the first one to start on the second. Nearly all of the foreigners who appeared in the Vanderbilt cup race were among the participants, and for that reason more interest than usual attached to it.

According to cable reports, the scene around the starting point at Pont-de-Gennes beggared description. Thousands of people had camped out, some sleeping in the huge grandstands, erected on both sides of the road, others snatching a few winks on the cushions of cars packed in the Automobile Club's enclosure for which the modest rental of twenty cents per square yard was charged. Thousands of little wooden huts had sprung up during the week until the place looked like a miniature village. For the privilege of staying in these huts overnight the populace gladly paid the ten, twenty, thirty francs asked, according to how many blankets one required.

Early in the morning and almost before the fog had cleared over the lowlands, the throng was astir and the gendarmes quickly took their places along the road a few yards apart. Promptly at six o'clock a hush fell over the multitude as the starter gave the word "Aller!" and Gabriel, grim faced and determined, pushed the lever of his 130 horsepower Lorraine-Dietrich, and was soon lost to sight down the black stretch of tarred road. Ninety seconds later a mighty cheer went up as Lancia, jovial as ever, advanced the spark of his Fiat and whirled away, for Lancia, albeit he is an Italian, was immensely popular with the crowd. Then at intervals of a minute and a half, these cars and their drivers got off in the following order: Szisz, 105 horsepower Renault; Hémery, 125 horsepower Darracq; Baras, 105 horsepower Brazier; Jenatzy, 125 horsepower Mercédes; Rigoly, 110 horsepower Gobron-Brillié; Cagno, 140 horsepower Itala; Teste, 130 horsepower Panhard; LeBlon, 125 horsepower Hotchkiss; Clément, 125 horsepower Bayard-a-Clément; Rougier, 130 horsepower Lorraine-Diétrich; Nazzaro, 135 horsepower Fiat; Edmond, 105 horsepower Renault; Wagner, 125 horsepower Darracq; Barrillier, 105 horsepower Brasier; Marioux, 125 horsepower Mercédes; Fabry, 140 horsepower Itala; Civelli de Bosch, 100 horsepower Gregoire; Heath, 130 horsepower Panhard; Salleron, 125 horsepower Hotchkiss; Villemain, 125 horsepower Bayard-a-Clément; Duray, 130 horsepower Bayard-a-Dietrich; Weillschlott, 135 horsepower Fiat; Richez, 105 horsepower Renault; Hanriot, 124 horsepower Darracq; Pierry, 105 horsepower Brasier; Florio ou Braun, 125 horsepower Mercédes; de Caters, 140 horsepower Itala; F. E. Shephard, 125 horsepower Hotchkiss, and De la Tourloubre, 125 horsepower Bayard-a-Clement. Of the thirty-four entries only two failed to start. One was No. 9, Tavernaux, 100 horsepower Gregoire, and the other was No. 11, Barrioux, in the much touted 120 horsepower Vulpes.

The length of the first day's race was about 372 miles, six times around the triangular shaped course. Lancia, who started second, was the first to complete the 103 kilometre circuit and the crowd greeted him warmly when he appeared leading the string of racing cars. His time for the 62 miles was 53:42⅘. This time was beaten in the first round by Baras, who covered the lap in 52:25⅗. Following Lancia on the first round came Szisz, swallow-like, apparently pressing the Italian hard, while Baras lost nothing. The first round brought accidents to Le Blon (Hotchkiss) and Fabry (Itala). LeBlon overturned his car while rounding one of the sharp curves at Calais, the turning point into the homestretch. St. Calais, normally, is a village of 3,627 inhabitants, but on Tuesday probably 10,000 people saw LeBlon upset and they rushed to pick up his mangled remains, as they thought, but the indominatible driver imme-

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PLANK ROAD BUILT OVER SWAMP FOR GRAND PRIX RACE.

diately set to work to right his capsized machine and repair the broken wheel that resulted. Fabry ran against a stone wall on the out trip and smashed his car beyond repair. Neither he nor his mecanicien was injured, however.

At the end of the second lap Baras was leading, although his time for that lap was nine seconds slower than in the previous contest. He received the first real cheer from the sleepy-eyed spectators. George Heath, the American driver of the Panhard and winner of the Vanderbilt cup race two years ago, was second, and he covered the lap in 64:06⅕. Elliott F. Shepard, another American driver, was third, in 61:12.

Nearly all of the contestants had tire troubles and the success of Szisz, who finished the first's day's race in the lead, was attributed in no small measure to a removable rim he used. It took the little Hungarian only four minutes to replace a punctured tire, while his competitors were lucky if they escaped with a loss of as much more. One of the conditions of the race was that all repairs must be made by the driver and his mechanic. A broken frame stopped George Heath in the fifth round, but he patched it up with wire and a steel brace and finished the sixth lap. Jenatzy ended the race with only one tire on. Several of the drivers were burned about the eyes and hands with flying drops of hot oil.

Many Americans viewed the first day's racing, the most prominent among them being Jefferson de Mont Thompson and A. G. Batchelder, who will select a team from the French cars to finish, to represent France in the Vanderbilt cup race.

Szisz's victory in the first half of the race was a surprise that nearly knocked the bookmakers out of business. The betting men had given odds of about 200 to 1 on Szisz, and although few placed bets on the dapper little Hungarian, some of his followers did and the result was enough to demoralize the "bookies." The bookmakers had a stand just as they do on the horse tracks in this country and when the race started the odds on the other drivers were as follows: Hémery and Baras, 8 to 1; Lancia, 10 to 1; Tarte, 12 to 1; Jenatzy, Wagner and Cagno, 15 to 1; Teste, 18 to 1; Clément and Gabriel, 20 to 1; Nazzaro, Duray, Le Blon, Barillier and Edmond, 25 to 1; George Heath and Pierry, 30 to 1; Baron de Caters, Rougier, Rigoly and Villemain, 33 to 1.

Szisz completed the six rounds of the 62-mile circuit in 5 hours 45 minutes and 30 seconds, having travelled the 372 miles at an average speed of 107 kilometres (66.4 miles) per hour. He was the third man to be sent away Tuesday morning, starting from the official stand near the railroad station at Pont-de-Gennes at three minutes after 6 o'clock. At the end of the first and second rounds he was the second man to pass to stand, but he assumed the lead and at the end of the third circuit of the course he was leading, which advantage he maintained to the end of that day's part of the contest.

Albert Clément, the young son of the builder of the 125 horsepower Bayard-Clément he drove so skillfully, finished in second place, his time being 6 hours 11 minutes and 40⅗ seconds.

Nazzaro of Italy, who did so well for his country in last year race for the Bennett cup, when he finished second to the great Thery, overshadowed his more-famous compatriot, Tuesday, by finishing in third place with his 135 horsepower Fiat in 6 hours 26 minutes 5⅗ seconds. Elliot F. Shepard of New York City, was fourth, with a 125 horsepower Hotchkiss, as a representative of France, in 6 hours 30 minutes. He was next to the last to be sent away. His fastest circuit of the course was the fourth, which he made in 57 minutes 45⅕ seconds.

The summary of the first day is as follows:

Car.	Driver.	Time H.M.S.
1. Renault, Szisz		5:45:30
2. Clement-Bayard,	A Clement	6:11:40
3. Fiat, Nazarro		6:26:53

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THE TWO AMERICANS WHO REPRESENTED FRANCE.



GEORGE HEATH.



ELLIOT F. SHEPARD.

4. Hotchkiss, Shepard 6:30:45
5. Brasier, Barillier 6:31:48
6. Renault, Richez 6:35:47
7. Panhard, Heath 6:48:12
8. Panhard, Teste 7:01:53
9. Fiat, Lancia 7:12:00
10. Darracq, Hemery 7:26:13
11. Gobron, Rigolly 7:36:08
12. Mercedes, Marlaux 7:39:31
13. Brasier, Barras 7:41:43
14. De Dietrich, Duray 7:58:46
15. Brasier, Pierry 7:59:05
16. Mercedes, Jenatzy 7:07:20
17. De Dietrich, Rougier 8:16:35

By virtue of his having led at the end of the first day's racing, Francois Szisz, in his 105 horsepower Renault, was started first in the final 600 kilometres, on Wednesday, 27th inst., leaving a few minutes after six o'clock. One of the rules of the contest was that the cars, after having been locked up for the night, were not allowed to be touched until the starting time the next morning, the time counting from the instant they breasted the line. For that reason there was considerable animation at the start. Szisz astonished the crowd by his alacrity in the preliminary preparations. He changed two tires, replenished his tanks with water, gasolene and oil, adjusted his lubricator and tightened half a dozen nuts all within ten minutes. Lancia's excitement at the start was amusing for all but his mecanicien. In his haste to get away he stalled his engine and when his helper started it again Lancia did not give him time to get on. The man rode for miles clinging to the bonnet and was transferred to his proper place at the next repair station.

Szisz led on the first round, covering the 63 miles in 1 hour 2 minutes 43 seconds. At the end of the first lap Albert Clément was second in 1:0302; Nazzaro, third, in 1:02:36; Barillier, fourth, in 1:1348; Heath, fifth, in 1:11:55, and Richez sixth in 1:29:00. From then on Szisz was never headed and when he passed the grandstands on the fifth lap, every one knew that barring unforseen accidents he must finish first. He was looked for with intense eagerness and when at last he appeared above the hill summit in the distance a great roar burst from the multitude. The band played Marseilles as Szisz flashed over the finish line but no one heard it. His arrival at the tribune after bringing his car to a stop was met with renewed cheers and, of course, the French dignitaries made a few speeches about Szisz's upholding the glory of French manufacturers and some other rot. Szisz covered the final laps in 6 hours 28 minutes 36⅘ seconds, making his total elapsed time for the 1,200 metres 12 hours 14 minutes and 7 seconds. Szisz was fifth in last year's Vanderbilt cup race, and as he qualifies for the French team will be regarded a factor in this year's contest.

The real interest, however, was in the fight for second place between Nazzaro, the gentlemanly Italian, and Albert Clément, the pudgy young Frenchman. On the last lap both Nazzaro and Clément stopped a few minutes at the grandstand to make a few repairs and they got under way for the last circuit at about the same time. Clément had held second place in the tenth round when the olive-skinned Italian passed him, but some minor trouble slowed Nazzaro and Clément regained second place. However, Nazzaro kept at his task and finished the race just three minutes ahead of Clément, in 12 hours 46 minutes 26⅘ seconds, total time. Clément's total time was 12:46:26⅘. Barillier was fourth in 13:53. while tire troubles prevented the daring Lancia from getting better than fifth.

Elliott F. Shepard, driving the only Hotchkiss car left in the race, took one of the turns in the second lap too fast and his car turned turtle. He was not injured, however. Teste met with a frightful accident on the second lap soon after turning at La Fourche. One of the front wheels flew off his car, and in an instant the axle dug into the ground and both men plunged into the air. Teste broke his thigh, fractured several ribs and injured his wrist. He is reported in a precarious condition. It was not learned whether or not his mecanicien was injured. Nearly all the drivers suffered more or less from the two days' strain of the terrific pace and several had their eyes fearfully burned by the tar dust. The showing of the Darracq cars was disappointing to the Frenchmen and Hemery met with an accident on the first lap, and was forced to withdraw. Jenatzy was unable to start on account of his burned eyes, and Alexander Burton took his place, finishing tenth. Rigoly abandoned the contest in the eighth lap, and Richez overturned in the ninth, but escaped uninjured. Rougier did not finish. Here is how the eleven of the thirty-two starters finished and their total time:

Order. Car and Driver.	Time H.M.S.
1. Renault, Szisz	12:14:07
2. Fiat, Nazarro	12:45:25
3. Clément-Bayard, Clément	12:49:46
4. Brasier, Barillier	13:53:00
5. Fiat, Lancia	14:22:11
6. Panhard, Heath	14:47:45
7. Brasier, Baras	15:15:50
8. De Dietrich, Duray	15:26:01
9. Brasier, Pierry	16:15:07
10. Mercédes, Burton	16:18:42
11. Mercédes, Marieaux	16:38:51

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PHILADELPHIANS IN A FURY

They Seek to Enter Vanderbilt Cup Race—The Seeking Leads to Knowledge.

Philadelphia, the city whose residents have, since the days of William Penn, been endeavoring to live up to the founder's ideals of peace and serenity, is disturbed, and, more specifically, three of its residents, who also hold membership cards in the Automobile Club of Philadelphia, are in high dudgeon. And the reason, and events thereto, are so amusing as to be highly ridiculous. The members of the club, who wax more indignant every time they think of what has disturbed their placid calm, are H. Bartol Brazier, secretary, and Charles J. Swain and John N. Wilkins, Jr., just members.

As is well known, the Automobile Club of Philadelphia, some time ago, withdrew from the American Automobile Association, because of that old and tiresome cry of a few disgruntled members: "Where is our money going to?" After doing so, it immediately affiliated itself with the Pennsylvania Motor Federation, allied with the American Motor League.

A long time ago, in fact before the Quaker City club decided to withdraw from the A. A. A., because a few of its members could not see the wisdom of the club's spending its share of a few dollars toward oiling the Vanderbilt cup course, Swain and Wilkins announced that they would enter Stanley steamers in the Vanderbilt cup race. The specially built steam cars were finished and one of them was given a public test at the Readville track meet on Decoration Day, where it failed to distinguish itself. Later Swain and Wilkins, so the Philadelphia papers state, sent in their formal entry of the two cars for the elimination race, to Jefferson De Mont Thompson, chairman of the Vanderbilt cup commission. Immediately upon receipt of the entries, Mr. Thompson wrote to the secretary of the Philadelphia club, stating that the local organization was not recognized by the national body and that no entries could be made through that club, calling attention to the eligibility clause on the entry blank which succintly states that "competition for this cup shall be open only to clubs that are recognized by or affiliated with the American Automobile Association, and to clubs recognized by or affiliated with the Automobile Club of France, the Automobile Club of Germany, the Italian Automobile Club and the Automobile Club of Great Britain and Ireland."

Whereupon the secretary of the Philadelphia organization became furious and said that he would "take steps to insure the acceptance of the entries." However, as Swain and Wilkins are members of the Cape May Automobile Club, which is still a member of the A. A. A., their entries may be made through the New Jersey organization, but then, the Automobile Club of Philadelphia will not receive the free advertising it expected.

Chicago's Fourth of July Meet.

Chicago's Fourth of July race meet at the Harlem track will in all probability prove the biggest track meet of the season. Arrangements have been under way for some time and the track will be thoroughly oiled prior to the contest. The meet will begin at 3:30 p. m., July 3, a twenty-four hour race, open to stock cars, running on the track until that hour the following afternoon. The principal event on Wednesday will be a five-mile free-for-all—the Harlem Sweepstake—for which Barney Oldfield, Webb Jay, Orlando Weber, C. A. Coey, "Joe" McDuffie and Jerry Ellis have entered. A purse of $1,500 in gold will go to the winner and $500 to the second. Six other events are carded.

Why Buffalo May Suppress Horns.

Buffalo's automobiles will be "exhaust-hornless" if the ordinance introduced by Alderman Callahan goes through City Council. The Alderman, who is a physician, claims that the "screech from these pipes" has worked havoc with the condition of his patients, and that other physicians have complained. Alderman Coppins expressed himself in favor of the resolution and explained to Alderman Mullenhoff, who advanced the theory that a city ordinance made horns on automobiles obligatory, that there was no objection to the use of the common horn which is blown by pressing a rubber bulb. The matter was referred to the Committee on Ordinances.

Chicago to Hold Economy Test.

Chicago is to have an economy contest of its own within a few weeks. At the last meeting of the Chicago Automobile Trade Association, definite plans were made for a 100-mile efficiency run, to take place instead of the proposed 500-mile efficiency run for which Ralph Temple, president of the association, had offered a $500 trophy. The course is to include Elgin and Aurora and several valuable prizes will be given the successful drivers. Joseph F. Gunther, Walter L. Githens and Arthur Bennett were appointed a committee to draw up rules and regulations to cover the contest.

"Frost" Removed to Asbury Park.

Long Branch's carnival last summer proved such a frost that the promoter has decided not to risk a repetition and accordingly he has removed his summer carnival to a more southerly place—Asbury Park, six miles distant, to be exact. The dates selected are August 22, 23, 24 and 25, and the feature will be, it is announced, a show of cars and accessories in the Arcade, on the boardwalk. There also will be a fuel efficiency contest, a floral parade, and sprint racing on the ocean boulevard, which is a mile in length.

HOIST BY HIS OWN PETARD

One of those Tin Horn "Record Breakers" Runs Afoul of the New Jersey Law.

John McGraw, of Philadelphia, is wondering whether the winning of a silk hat compensates for the probable deprivation of the right to drive an automobile in New Jersey.

On Friday last, McGraw, according to his own alleged boasts after his record performance, set out from Camden to break all records from that place to Atlantic City. McGraw is said to have made the journey of over sixty miles in less than ninety minutes and the performance has come under the notice of J. B. R. Smith, the New Jersey Commissioner of Motor Vehicles under the new law. It is now up to the Philadelphian to explain satisfactorily the wild ride to the commissioner, as witness the following letter sent to McGraw by Commissioner Smith:

"My attention has been called to newspaper reports that you ran a motor vehicle on Friday afternoon from Camden to Atlantic City on a wager in ninety minutes. I exceedingly regret if this information is is true, and I am writing you requesting that you advise me immediately whether you have been correctly reported.

"I further observe from the report that you used a 50 horsepower Thomas automobile, belonging to yourself, whereas the only automobile registered in your name in this State is a 20 horsepower Winton touring car. Of course, if the report is correct, you have most flagrantly violated, in two very important respects, both the spirit and the letter of the old as well as the new law, and I am taking this opportunity to advise you that this department cannot look with any degree of complacency upon such use of the roads or contempt of reasonable motor vehicle regulations.

"Under the new law, which goes into full effect on July 1, vehicles are registered and drivers are licensed at the discretion of the Commissioner of Motor Vehicles, and I wish to advise you that I cannot allow either a registration for your vehicles or a license for yourself as a driver to exist after that time while this charge is against you.

"I have accordingly notified our agent in Camden not to issue either registration or license to you until he receives further advices from me, and unless I receive a satisfactory explanation regarding the newspaper reports above referred to, I shall be compelled to make this rule permanent at all our agencies."

The New Jersey Automobile and Motor Club will not hold a race meet at Waverly, on July 4, as had been planned, but one will be held later in the summer. It was impossible to get many of the motorists to consent to take part in the race on Independence Day.

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RUSSIANIZED BAY STATE

More Drastic Law goes into Effect—Makers, Dealers and Non-Residents Affected.

Massachusetts's latest revision of its automobile law which was approved by the governor on May 24th, went into effect on Monday last. In at least two respects it is fairer than the previous act, i. e., by requiring that all police traps shall be not less than one-quarter mile in length and by extending from 15 to 60 days the time in which protests against special legislation enacted by local authorities may be filed.

In all other details, the revised law simply serves to make the Bay State appear more than ever like a province of Russia instead of an integral part of an American republic. The amendments increase the czarlike powers of the Massachusetts Highway Commission, practically constituting that body a legislative court with power to enact laws, that is, rules and regulations, at its option and to impose fines for the violation thereof. Manufacturers and dealers are singled as special targets. According to the revised act, if they violate the law, the Highway Commission is absolutely required to practically put them out of business for periods of from 30 to 60 days or longer if deemed necessary—this by revoking the licenses covering all cars they may possess. Revocation of owners' licenses for three offenses is also made mandatory.

Non-residents also are affected by the changes. Previously they were permitted to remain 15 days in Massachusetts under the license of their own States; the amendments reduce the period to seven days. The full text of the revisions follow:

[Chap. 353.]

Section 1. The Massachusetts highway commission may from time to time prepare rules and regulations governing the use and operation of automobiles and motorcycles. Such rules and regulations shall be in addition to any rules and regulations already written in the certificates and licenses issued by said commission under authority of chapter four hundred and seventy-three of the acts of the year nineteen hundred and three of the acts in amendment thereof. Said commission may from time to time alter, rescind, or add to any rules and regulations previously made by it.

Sec. 2. The rules and regulations specified in section 1, and any changes therein, shall take effect when approved by the governor and council and published in at least one newspaper printed and published in each county of the commonwealth, and such publication shall be sufficient notice to all persons. The sworn certificate of any member of said commission or of its secretary that said rules and regulations have been published as herein provided shall be prima facie evidence thereof. A copy of such rules and regulations attested by any member of the commission or by its secretary shall be prima facie evidence that they have been made by the commission and approved by the governor and council as provided by law.

Sec. 3. Any person convicted of operating an automobile or motorcycle in violation of any rule or regulation made under authority of this act may be punished by a fine not exceeding $25 for the first offense, not exceeding $50 for a second offense and not exceeding $100 for subsequent offenses.

Sec. 4. This act shall not be construed as giving the Massachusetts highway commission power to regulate the speeds at which motor vehicles may be operated on the public ways, or to affect the statutory authority of the metropolitan park commission or of the park commission of any city or town to make rules and regulations governing the use of automobiles and motorcycles on lands, roadways and parkways under its care and control. [Approved May 3, 1906.]

[Chap. 412.]

An Act Relative to Automobiles and Motorcycles.

Be it enacted, etc., as follows:

Section 1. Chapter four hundred and seventy-three of the acts of the year nineteen hundred and three is hereby amended by striking out section eight and inserting in place thereof the following: Section 8. Every person operating an automobile or motorcycle on any public or private way laid out under the authority of law, shall run it at a rate of speed at no time greater than is reasonable and proper, having regard to traffic and the use of the way and the safety of the public. If the rate of speed of an automobile or motorcycle operated on any such way outside the thickly settled or business part of a city or town exceeds twenty miles an hour for the distance of one-quarter of a mile such rate of speed shall be prima facie evidence that the person operating such automobile or motorcycle is running it at a rate of speed greater than is reasonable and proper, having regard to traffic and the use of the way and the safety of the public. If the rate of speed of an automobile or motorcycle operated on any such way inside the thickly settled or business part of a city or town exceeds twelve miles an hour for the distance of one-eighth of a mile such rate of speed shall be prima facie evidence that the person operating such automobile or motorcycle is running it at a rate of speed greater than is reasonable and proper, having regard to traffic and the use of the way and the safety of the public. If the rate of speed of an automobile or motorcycle operated on any such way upon approaching a crossing of intersecting ways, or in traversing a crossing or intersection of ways, or in going around a corner or a curve in the highway where the operator's view of the road traffic is obstructed, exceeds eight miles an hour, such rate of speed shall be prima facie evidence that the person operating such automobile or motor cycle is running it at a rate of speed greater than is reasonable and proper, having regard to traffic and the use of the way and the safety of the public.

Sec. 2. The phrase "thickly settled or business part of a city or town," in sec. 1 of this act shall be deemed to mean the territory of a city or town contiguous to any such way which is built up with structures devoted to business, or the territory of a city or town contiguous to any such way where the dwelling houses are situated at such distances as will average less than 200 feet between such dwelling houses for a distance of a quarter of a mile or over.

Sec. 3. Sec. 9 of said chap. 473, as amended by sec. 5 of chap. 311 of the acts of the year 1905, is hereby further amended by inserting after the word "the," in the first line, the words: Massachusetts highway—by inserting after the word "revoked," in the 20th line, the following: "And any person who attaches or causes to be attached to a motor vehicle a number plate assigned by the Massachusetts highway commission to another vehicle, or who obscures or causes to be obscured the figures on any number plate attached to any motor vehicle with intent to conceal the identity of such motor vehicle—and by adding at the end of the section the words: A complaint against a person for the violation of sec. 1 of this act may be placed on file at the discretion of the court or trial justice, if the violation appears to have been unintentional, or if there are extenuating circumstances. Upon a third subsequent conviction in the same calendar year of a violation of said section the commission shall forthwith revoke the license of the person so convicted. If it appears by the records of said commission that the person so convicted is the owner of an automobile or motorcycle, or has the exclusive control of any automobiles or motorcycles as a manufacturer or dealer, said commission shall thereupon revoke the certificate of registration of all automobiles or motorcycles so exclusively owned or controlled; and no new license or certificate shall be issued to such person for at least 30 days after the date of such conviction, nor thereafter except in the discretion of said commission, so as to read as follows:

Section nine. The Massachusetts highway commission may, after due hearing, suspend or revoke a certificate issued under section one of this act, or the license or certificate issued to any person under sections two and four of this act, for any cause which it may deem sufficient; and any person convicted of violating any provision of this act may be punished by a fine not exceeding twenty-five dollars for a first offense, and not exceeding fifty dollars for a second offense, and not exceeding one hundred dollars for subsequent offenses committed during the calendar year; and the penalties imposed for violations of any provision of this act for any calendar year shall be imposed without regard to violations thereof committed in any previous calendar year. Any person convicted of operating an automobile or motorcycle in this commonwealth after his license to operate has been suspended or revoked, and any person convicted of operating or causing or permitting any other person to operate an automobile or motorcycle after the certificate of registration for such vehicle has been suspended or revoked, and any person who attaches or causes to be attached to a motor vehicle a number plate assigned by the Massachusetts highway commission to another vehicle, or who obscures or causes to be obscured the figures on any number plate attached to any motor vehicle with intent to conceal the identity of such motor vehicle, shall be punished by a fine not exceeding one hundred dollars or by imprisonment for a term of ten days, or by both such fine and imprisonment. A complaint against a person for the violation of section one of this act may be placed on file at the discretion of the court or trial justice if the violation appears to have been unintentional, or if there are extenuating circumstances. Upon a third or subsequent conviction in the same calendar year of a violation of said section the commission shall forthwith revoke the license of the person so convicted. If it appears by the records of said commission that the person so convicted is the owner of an automobile or motorcycle, or has the exclusive control of any automobiles or motorcycles as a manufacturer or dealer, said commission shall thereupon revoke the certificate of registration of all automobiles or motorcycles so exclusively owned or controlled; and no new license or certificate shall be issued to such person for at least thirty days after the date of such conviction, nor thereafter except in the discretion of said commission.

Sec. 4. Whoever operates an automobile or motorcycle on any public way or private way laid out under authority of law recklessly or while under the influence of intoxicating liquor, or so as to endanger the lives or safety of the public, shall be punished by a fine not exceeding one hundred dollars or by imprisonment for a term not exceeding six months. A conviction of a violation of this section shall forthwith be reported by the court or trial justice to the commission which shall immediately revoke the license of the person so convicted. If it appears by the record of said commission that the person so convicted is the owner of an automobile or motorcycle, or has exclusive control of any automobiles or motorcycles as a manufacturer or dealer, said commission shall thereupon revoke the certificate of registration of all automobiles or motorcycles so exclusively owned or controlled. No new license or certificate shall be issued by said commission to such person until after sixty days from the date of such conviction, nor thereafter except in the discretion of said commission.

Sec. 5. Section six of chapter three hundred and eleven of the acts of the year nineteen hundred and five is hereby amended by striking out the words "convicted under," in the third line, and inserting in place thereof the words: charged with a violation of any of,—so as to read as follows:—Section 6. A full record shall be kept by every court or trial justice in this commonwealth of every case in which a person is charged with a violation of any of the provisions of said chapter four hundred and seventy-three or of any other act relative to automobiles or motorcycles, and a certified copy of such record shall be sent forthwith by the court or trial justice to the Massachusetts high way commission. Said courts and trial justices shall furnish to the Massachusetts highway commission the details of any particularly flagrant cases which may be heard before them, and they may make such recommendations to said commission as to the suspension or revocation of the license or certificate of registration of the persons defendant in such cases as they may deem necessary. Said commission shall keep such records in its main office, and they shall be open to the inspection of any person during reasonable business hours.

Sec. 6. Any person who, while operating or in charge of a motor vehicle, shall refuse when requested by a police officer to give his name and address, or the name and address of the owners of such motor vehicle, or who shall give a false name or address, or who shall refuse or neglect to stop when signalled to stop by any police officer who is in uniform or who displays his badge conspicuously on the outside of his outer coat or garment, or who refuses on demand of such officer to produce his license to operate such vehicle or his certificate of registration, or to permit such officer to take the license or certificate in hand for the purpose of examination, shall be punished by a fine of not less than twenty-five nor more than one hundred dollars.

Sec. 7. Any person owning or controlling a motor vehicle, who, when requested by a police officer, shall refuse or neglect to give any information within his power to give which may lead to the identification or apprehension of the person who was driving such motor vehicle on the occasion inquired about, shall be punished by a fine of not less than twenty-five nor more than one hundred dollars; provided, that no evidence obtained under the provisions of this section shall be used in any criminal proceeding against the person furnishing the same.

Sec. 8. Section one of chapter four hundred and seventy-three of the acts of the year nineteen hundred and three, as amended by section two of chapter three hundred and eleven of the acts of the year nineteen hundred and five, is hereby further amended by striking out the word "fifteen," in the fifty-fourth line, and inserting in place thereof the word:—seven,—so as to read as follows:—Section 1. All automobiles and motorcycles shall be registered by the owner or person in control thereof in accordance with the provisions of this act. Application for such registration may be made, by mail or otherwise, to the Massachusetts highway commission or any agent thereof designated for this purpose, upon blanks prepared under its authority. The application shall, in addition to such other particulars as may be required by said commission, contain a statement of the name, place of residence and address of the applicant, with a brief description of the automobile or motorcycle, including the name of maker, the number, if any, affixed by the maker, the character of the motor power, and the amount of such motor power stated in figures of horse power; and with such application shall be deposited a registration fee of two dollars. The said commission or its duly authorized agent shall then register, in a book to be kept for the purpose, the automobile or motorcycle described in the application, giving to such automobile or motorcycle a distinguishing number or other mark, and shall thereupon issue to the applicant a certificate of regulation. Said certificates shall contain the name, place of residence and address of the applicant and the registered number or mark, shall prescribe the manner in which said registered number or mark shall be inscribed or displayed upon the automobile or motorcycle, and shall be in such forms and contain such further provisions as the commission may determine. A

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proper record of all applications and of all certificates issued shall be kept by the commission at its main office, and shall be open to inspection of any person during reasonable business hours. The certificate of registration shall always be carried in some easily accessible place in the automobile or motorcycle described therein.

Upon the transfer of ownership of any automobile or motorcycle, its registration shall expire and the person in whose name such vehicle is registered shall immediately return the certificate of registration to the Massachusetts highway commission with a written notice containing the date of such transfer of ownership and the name, place of residence and address of the new owner. The Massachusetts highway commission at its discretion, may assign to any person who so surrenders his registration certificate and who desires to register another automobile or motorcycle the distinguishing number or mark described in the surrendered certificate. No number or number plate other than those prescribed by the Massachusetts highway commission in its certificates of registration shall be displayed on any automobile or motorcycle operated in this commonwealth; provided, however, that any automobile or motorcycle owned by a non-resident of this State who has complied with the laws relative to motor vehicles and the operation thereof of the State in which he resides, may be operated by such owner on the roads and highways of this State for a period not exceeding seven days without the license, certificate of registration and number plates furnished by the Massachusetts highway commission. Every such vehicle shall have displayed upon it the distinguishing number or mark of the State in which the owner thereof resides and none other until the vehicle is registered in accordance with the provisions of this section.

Sec. 9. Section one of chapter three hundred and sixty-six of the acts of the year nineteen hundred and five is hereby amended by striking out the words "fifteen days," in the nineteenth line, and inserting in place thereof the words:—sixty days—so as to read as follows:—Section 1. The city countil of a city or the board of aldermen of a city having no common council, and the selectmen of a town, may make special regulations as to the speed of automobiles and motorcycles and as to the use of such vehicles on particular roads or ways, including their complete exclusion therefrom. If they determine that on any particular way a speed greater than the speeds specified in section eight of chapter four hundred and seventy-three of the acts of the year nineteen hundred and three may be permitted with safety, they may make such special regulations as may appear to them to be necessary; provided, however, that no such special regulation increasing or lessening the speed at which automobiles and motorcycles may be run on the public highways, or excluding them therefrom, shall be effective unless such regulation shall have been published in one or more newspapers, if there be any, published in such city or town, otherwise in one or more newspapers published in the county in which the city or town is situated. If within sixty days after the publication of such notice, not less than fifty residents of Massachusetts, at least ten of whom shall be taxpayers of the city or town, file a written protest with the Massachusetts highway commission, such special regulation shall not be valid until approved by said board after public notice and a hearing given by said board in the city or town. Such special regulation shall be posted conspicuously by or under the direction of the Massachusetts highway commission on sign boards at such points as the board may deem necessary. The cost of such sign boards and the expenses in connection with their erection and maintenance shall be paid out of the appropriation for expenses in connection with the registration of automobiles and motorcycles and the licensing of operators thereof. No ordinance, by-law or regulation now in force in any city or town which regulates the speed at which automobiles or motorcycles shall be run upon its public ways shall hereafter have any force or effect. Nothing herein contained shall be so constructed as to affect the rights of boards of park commissioners, as established by law.

If all the Air, etc.

The idler with nothing more than occasional tire troubles to worry him is at work again. He figures that if all the air that is compressed into the automobile tires of the United States were compressed into one great tire it would fill a tire 2,617,250 feet in diameter and 2,094,122 inches through the tire. The tire, if laid flat, would surround the State of Ohio, and if the valve was pointed nor-noreast, two points east, from Ashtabula, and opened suddenly, releasing the compressed air, it would create a storm that would wreck every vessel on Lake Ontario, and cause $32,187,211.23 damage at Buffalo. However, as these statistics are but an idle dream, there is no need for a display of storm signals.

HERKOMER RULES FARCICAL

Peculiar Provisions Detracted from Merit of Contest—Pierce gets Clear Score.

Mail advices of the result of the Herkomer cup contest, which was completed at Munich, Bavaria, on Tuesday, 12th inst, of course, confirm the cabled report published in last week's Motor World, that the winner of the contest was Dr. Stoess, of Zwicken, who drove an 18-20 horsepower Horch, second, third and fourth places going to E. Neuman, W. Poege and H. Opel, of Russelheim, the latter driving an Opel-Darracq of 40 horsepower. Stoess and Poege also received awards for winning the speed trials at Fostenreider Park and the Semmering hill climb, respectively, while W. Eschenbach, Munich, received the first prize for general appearance at the close of the competition. Percy Pierce, who with his Pierce-Arrow, made America's sole representation in the event, came off with a clean score and will receive a Herkomer medal in token of the fact. This adds interest to the winner of last's year's Glidden trophy, and makes his appearance in this season's event all the more important, for it is now known definitely that he is returning to America and that he will strive to hold the cup.

If the Herkomer course of this year proved one of the most trying ordeals ever placed before the amateur driver, certainly never was apportunity granted for any driver, amateur or professional, to compete in an event run on more radical and freakish lines. For although, as all agree, the conduct of the meet was admirable in every way from the original conception down to the last detail of execution, the basis of scoring casts a greenish tinge of ridicule over the entire performance. A series of tests with cars of different types had been run over the course previously and their performance worked out with regard to their cylinder displacement, taking absolutely no account of their weight—only of the displacement and the general type of body. From these results, a series of arbitrary curves had been plotted, from which the results of the actual contest were judged. Hence, a car which ran better than it should in theory, considering its displacement, and regardless of its weight and lading, was credited with a certain number of marks, while if it fell below this arbitrary standard, it was charged up with a corresponding number of demerits. This coupled with the fact that despite the understanding that all cars were to be in touring commission, several mounted special bodies, cut down to the last degree of weight, deprived the contest of all fairness and occasioned a great deal of dissatisfaction.

Realizing that the method of scoring was distinctly favorable to the lighter cars, since some of the heavier machines would have had to attain something like 100 miles an hour on the flat road tests in order to win, many of the drivers of such machines drove with reckless disregard of the consequences, and occasioned in this way not a few of the casualties, which, however minor they were in actual fact, may well be considered as needless. Notwithstanding, the lighter cars took first place in almost every instance. And it is a noteworthy fact that from the winner down through the list, many of those which performed sufficiently well to receive merits, were comparatively unknown, and succeeded partly through the unwonted favoritism of the formula.

Ninety-eight competitors finished the contest in form, out of 134 to start. There were ten prizes for the general competition, four each for the hill climb and the speed contests, four for general appearance, and forty of the contestants received medals in token of having completed the course successfully.

Bemis Best in Vermont Climb.

Oscar Bemis, driving a 50 horsepower Thomas, won the free-for-all event in the first hill climbing contest of the Granite State Automobile Club, at Manchester, Vt., last Saturday afternoon, 23rd inst. The course is nearly a mile in length, with several turns and is considered a steep grade. Bemis covered the distance in 4 minutes 45 seconds. Byron Chandler, in a Peerless, finished second in 5:10 and C. E. Browrig, Pope-Hartford, was third, in 5:36½. Fourth place in the free-for-all was captured by W. F. Harrington, who drove a Pope-Toledo up the incline in 5:45.

This was the first event the Granite State Automobile Club ever held and naturally it created a deal of interest among the local motorists. Despite the threatening weather a good sized crowd assembled around the starting point and finishing points and cheered the favorites. The other events were restricted to smaller sized cars and were won by P. M. Robinson (Buick), 6:52, and G. M. Weatherbee (Crawford), in 6:14½.

American Car Wins English Climb.

Foreign advice brings news of a victory of an 18 horsepower White steam car in the hill climbing contest of the Midland Automobile Club, at Birmingham, England, on June 16. Although the time is not given it is stated the American car climbed the "mound" in six seconds' faster time than any of its thirty-four competitors, which included English, French and German cars of two and three times its horsepower.

Favors Tax on all Vehicles.

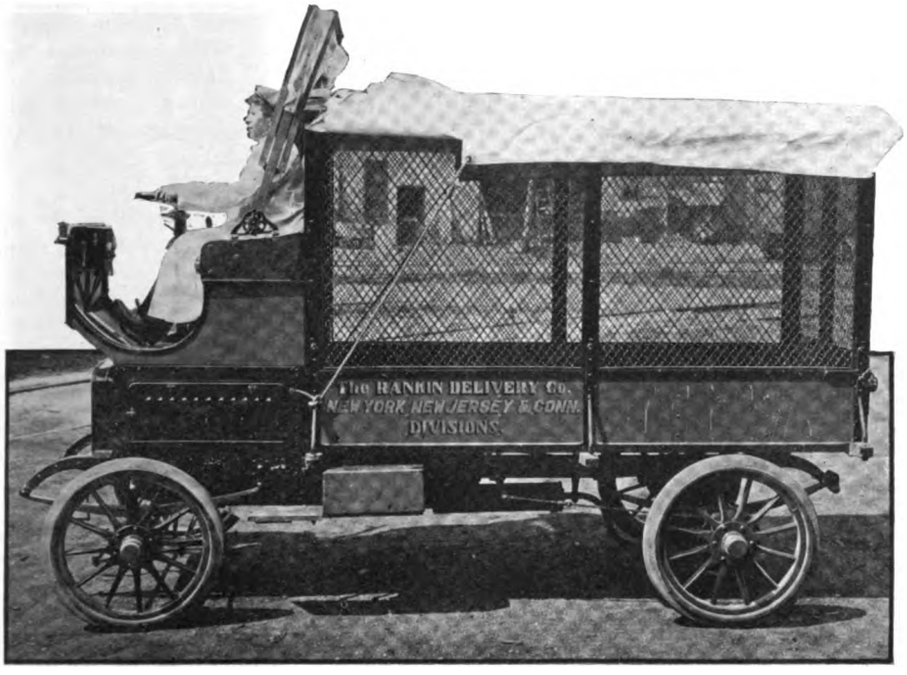
The municipal affairs committee of Buffalo's (N. Y.) Chamber of Commerce, met last week and resolved to go on record as favoring the proposed tax on all vehicles. Which means that Buffalo motorists will be mulcted a local vehicle tax on their cars in addition to what they already pay in personal tax and State license.

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WAGON WITH SPIRAL DRIVE

Mitchell the Creator of it—Vehicle now Doing Good Service in New York.

Advancement in the forwarding of the commercial vehicle movement is being manifested this year in the introduction of a great number of new types of car to the market, but further than this, the value of the missionary work which is being done in the field is revealed in the actual placing of orders over a wide range of territory and representing a great variety of usage. But however much the good work is going on abroad, it almost goes without saying that here in New York, it is keeping pace and with the advance elsewhere. Thus, for instance, the Mitchell Motor Car Co., Racine, Wis., has recently placed one of its latest model delivery wagons with the Rankin Delivery Co., of New York City, where it already is giving good satisfaction.



Aside from the neat and attractive appearance of the Mitchell truck, it possesses one or two features of excellence which should not pass unnoticed. The positioning of the engine at the front, with the driver's seat directly above it, is a point which serves to give to the body its greatest possible carrying capacity without sacrificing anything to the arrangement of the power plant. The motor and transmission are relatively carried in the same relation as on the standard type of road chassis, yet instead of serving to lengthen the chassis, in this instance, they are worked into it to the best advantage. Also the location of the driver in an elevated position places him at an advantage in traffic which can only be appreciated by old drivers.

Another feature of the machine which, besides being a novelty, is a distinct departure from tradition, lies in the method of drive by spiral gearing. This method, replacing the bevel drive commonly associated with the cardan shaft transmission, has been looked upon with longing eyes by many designers who have lacked the assertiveness to assume the responsibility of its initiative. It has been applied with good success in certain types of car made abroad, but its use on the Mitchell is an innovation in American motor car practice. Because of the fact, the result of its usage will be watched with more than usual interest.

"Knocks" that are Harmless.

Before spending a great deal of time looking for a mysterious knock that is only audible when the car is running, and which disappears as if by magic when the car is standing regardless of how fast the engine may be run, it is a wise precaution to see whether the contents of the tool box are packed in snugly or whether this part of the car looks like the tag end of a holiday when the cover is opened. Sundry wrenches, spanners, screwdrivers and spares of various natures, when judiciously thrown into the tool box with an occasional oil can or two and thus left to themselves, can generate no end of noise when the car happens to be running over a smooth or a rough road. Many a knock that sounded most ominous to the ears of the driver has been traced to a cause no more serious than this.

Never test the condition of an ignition battery by bridging the terminals with a screwdriver. The resulting spark is an undoubtable criterion, but it often marks the termination of the effective work of the charge, since besides causing a rapid discharge, it tends to buckle the plates.

SEVEN DAYS' INDUSTRIAL TEST

All Save one Vehicle Complete the Program —Two Employ Alcohol Fuel.

Twenty-four of the twenty-five starters completed the seven days' contest of industrial vehicles organized by the Automobile Club of the North of France, arriving at Tourcoing on Tuesday, 12th inst. Seventeen received awards for having successfully completed the seven stages of the contest, one firm, the Maison Latil, was given a team prize for the excellent work of its three machines, and two others, the Brille and Mototri Contal, gained special notice for using alcohol during the contest. The total distance made was 432 kilometres, or about 268½ miles, the contest being divided into seven stages of about 37 miles each, a day being allowed for each stage, and a maximum time limit restricting the drivers. The route led from Paris to Tourcoing, and was completed by two days of travel in the vicinity of the latter place, with night controls in the town.

The competition was divided into two grand classes, the first comprising public service vehicles, the second transport machines, and each of these groups was variously subdivided according to the passenger load or carrying capacity. There were twenty-nine entries, leaving but four failures to appear at the start. The vehicles were controlled over night, and all repair work had to be done outside these enclosures, the time consumed being counted into the running time. On the last day, a fuel consumption test was held, and the trial was followed by a two days' exhibition of the machines at Tourcoing.

Of the unusual types seen, one of the most interesting, was the Janvier Lorry, which was a six-wheeled vehicle, having the forward pairs of wheels attached to a sort of swiveled bogie truck connected with the main frame by a special arrangement of springs, and designed with especial regard to traversing rough roads without warping the chassis structure. It was driven by the rear wheels through a double chain transmission, steering being accomplished by guiding the four forward wheels simultaneously. Another noteworthy type, was the Avant-Train Latil, which consisted of a fore-carriage on which was mounted the power and guiding mechanism, and which was adapted for attachment to any existing vehicle. A sort of double cardan drive to the front wheels, permitted them to be utilized for the double purpose of propulsion and steering. Of the other machines, few presented radical departures from ordinary practice. Chain drive was largely in the majority as might be expected, four-cylinder motors of twenty horsepower or more were an average, and battery ignition predominated, with the low tension magneto a strong second. Plain iron tires were to be seen in many instances and of the several machines shod with rub-

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ber tires, the interrupted tread pattern with joints broken in the case of the twin types, seemed to be a favorite.

By no means the least interesting class was that for tri-cars, which was represented by six entrants, in the names of two different makers, and which, besides running with considerable uniformity, made a fair showing in the consumption test on the last day of the contest. The eighth section of the transport vehicle class, was especially created at the starting point for the accommotation of the only entrant, the Mors milk van, which carried an unusual and heavy type of special body.

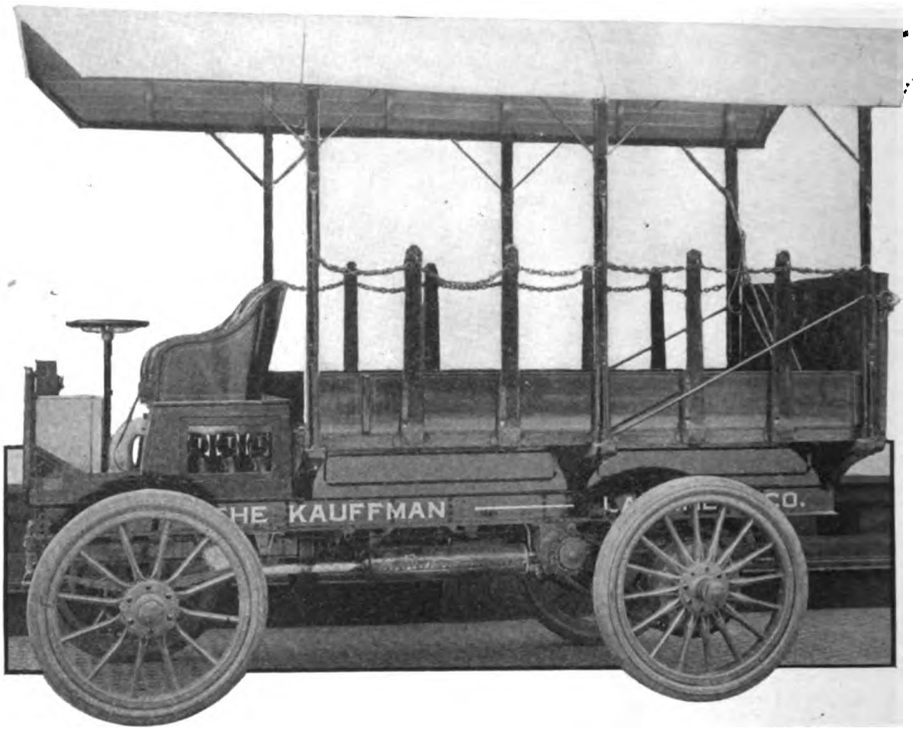
The first day's run was from Paris to Pontoise, a distance of 30 miles, under a maximum time limit of seven hours. The best time was made by one of the Austral tri-cars in 1 hour 49 minutes 47 seconds. None of the entrants failed to score. Two of them, however, failed to appear within the prescribed time on the second day, but subsequently put in an appearance, having suffered no serious injury. They were the Louet and Badin, and the Mors milk van. The course led from Pontoise to Beauvais, over 31 miles of highway. An element of hill-climbing was injected into the third day's run from Beauvais to Amiens, the Doullens Hill, presenting an eight per cent. average for considerable distance. From Arras to Tourcoing, the course of the fifth day, considerable rough road was encountered which, however, did not prevent the majority of the cars from finishing on time, only one, in fact, being behind schedule, and that, the Latil, was delayed for an hour or more owing to a slight accident encountered in crossing a railway line.

A delegation of officers from the General Staff accompanied the contestants on the sixth day's run from Tourcoing across the Belgian frontier to observe the working of the machines from the military point of view. The route comprised a circuit ending at Tourcoing, and included something like 42 miles of travel, while that of the seventh and last day was 40 miles long, and also ended at the starting point.

The best total time for the entire course was made in the passenger carrying class, by the 35 horsepower Bayard-Clement, which covered the 268 miles in sixteen hours, twenty-nine minutes and a fraction, but failed to receive an award on account of some minor mishap. The Delahaye, sixteen horsepower 'bus, in the same class, however, made the distance in eighteen hours, thirty-eight minutes, also recording a consumption of .07 pints per ton-mile, or thereabouts. The best time for any class was made by one of the Austral tri-cars, which covered the course in fourteen hours running time. Its consumption was not recorded. That of another tri-car, however, the Mototri Contal, No. 1, amounted to approximately .3 pints per ton-mile. The best economy developed in the contest, was that of the Aries lorry, which scored .04 pints per ton-mile, besides making a most consistent performance throughout the run and receiving general commendation. Seventeen of the entrants received awards for successfuly completing the seven stages of the contest, and numerous other commendatory marks were placed for special excellence of one sort and another, making the prize giving pretty nearly inclusive of all the entrants.

The First Frayer-Miller Truck.

A notable fact in connection with the advent of so many manufacturers into the field of the utility vehicle this season is that in numerous instances they have been urged to take the final step by the request of some prospective customer who, fully acquainted with the touring machine which is being produced, is convinced that as good success might be had with a commercial model. In this way many of the first machines of this class are built to order and secure an immediate sale, thus saving the builder the expense of finding a market for the first two or three cars turned out. A very good illustration of this is to be seen in the case of the new Frayer-Miller truck, which the Oscar Lear Automobile Company, Cincinnati, has just completed and placed with the Kauffman, Lattimer Company, of New York City, a wholesale drug house, which proposes to utilize it in the haulage of large consignments of its commodities.



Although this machine has only just been delivered, the Oscar Lear Company states that it has been "on the stocks" since last fall, and that during the intervening period, they have been devoting their best energies to producing in it what shall be in every way a model of lightness and stability coupled with the essential requirements of platform room, and reliability in chassis and body.

The power equipment is the standard Frayer-Miller 24 horsepower, air-cooled motor, the mounting being concealed at the front beneath the driver's seat where it is at once economical of space, and readily accessible. The elements of the transmission and double chain drive are thoroughly in accord with current practice, and the wheel mounting is well in proportion to the limning of the body. The wheel base is 100 inches, and the tread 56 inches. Solid rubber tires are used all around, 34x3½, and 36x5, being the dimensions employed. Full platform springs are used both front and rear, giving an easy and reliable support to the load, and one not readily deranged.

The frame is of channel steel, steel castings being employed to carry the counter shaft bearings and other motive parts which take their support directly from it. All frame joints are riveted. Four speeds, obtained by means of sliding gear changes actuated readily, the internal expanding lever, and the motor control, are all placed conveniently with regard to the driver's position, and the steering mechanism comprising the usual worm and segment, is practically irreversible.

Owing to the construction of the body and its mounting above the tops of the wheels, the lateral dimensions are practically limited only by convenience in handling the machine in the street. This is an advantage peculiar to only a few makes of truck, and one which gives considerable latitude in designing to fit the requirements of any special load which is to be carried. The length of the platform is 108 inches, and the weight of the machine unladen is 1,300 pounds. It is designed to carry a net load of 5,000 pounds.

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BADLY BALANCED BODIES

Designers and Drivers Both to Blame—Tendencies Make Warnings Necessary.

A dangerous tendency appears to be developing in the matter of body design at the present time owing to the prevailing fashion of using heavy limousine tops on machines destined to be used for touring purposes. And owing to this fact, it would further appear that the swinging pendulum of vogue has about completed its extreme oscillation and that presently a reaction will set in resulting in the use either of lighter and better balanced bodies, or of radical departures in the manufacture of the chassis which will better adapt them for that class of work. The king pin about which the difficulty hinges lies in the use of heavily built tops supported at some distance from the ground, and the overloading of their decks with the tourists' luggage in disproportionate amounts. Undoubtedly this results in a serious overbalancing of the machines and frequently may have been responsible for accidents which, for lack of appreciation of the real cause, have been attributed to other things.

As a matter of fact, it is no uncommon thing to see a vehicle of this description with a massive body, carrying several small trunks or suit cases and three or four tires on the roof, and very evidently top-heavy in consequence. Yet the owner appears not to manifest any concern at the fact, and even goes the length of expecting to get as good an average of speed out of the car on the road as he would were it equipped with a simple open tonneau body. Whenever such cars are brought up sharply, or are turned in short radius at any speed, a deplorable lack of proper balance is at once manifest, even to the inexperienced eye, and what must be the strains when curves and rough grades are taken at higher speeds on the open road, is a matter easy to conjecture.

At a meeting of the coachbuilders held in connection with the recent exhibition at Milan, M. Georges Kellner, president of the French body builders' association, read a paper in which he emphasized this tendency most emphatically, placing the blame first of all upon the owner who frequently expected his machine to accommodate a load far in excess of its capacity, and second, upon the makers for providing chassis of insufficient width.

"The usual width of 'chassis' is 85 centimetres (33.46 inches)," he said. "We think that this width is insufficient for touring machines, although adequate for 'voitures de ville.' When the 'chassis' are too narrow it is necessary to make the bodies very wide-spreading, which is not at all pleasant to the eye, and which forces them out beyond the springs. This brings about a bad suspension and produces a lateral swing, which is not only disagreeable but dangerous. We think, therefore, that for town vehicles the width of the 'chassis' at the rear should be 85 centimetres; for vehicles used for both town and touring, that is 'demi-route,' 90 centimetres (34.43 inches), and for touring machines 95 centimetres (36.30 inches).

Further, he said: "In order that an automobile be well suspended and stable it is essential that the springs be long, that they do not have too much bow, and that they be placed as far as possible away from the 'chassis.' It is necessary also that the body be suspended between the springs, and not on them, so that the centre of gravity be as low as possible."

Mr. Kellner referred to the time of horse-drawn vehicles, and pointed out that then the body was always well swung within the springs and as low down as possible. With horse-drawn vehicles, where low speeds alone were possible, this was judged necessary. How much more so, therefore, was it necessary where high speeds were the rule.

In a series of interviews granted to representatives of a French daily paper, practically all of the well-known Parisian makers admitted the tendency, and bespoke the need of caution on the part of the driver in handling cars equipped with heavy coachwork. They spoke of the strains upon the chassis and indeed the entire machine, due to the swaying of top-heavy bodies, and pointed out the fact that such overloaded coachwork not simply is short lived, but wrenches the chassis itself, doing great damage to the mechanical parts, and undoubtedly shortening their life. Baron De Caters, among several motorists of international reputation interviewed, took a more moderate view of the case, and emphasized the necessity of caution on the part of the driver above all, saying that the closed bodies are as much a necessity to-day as the open ones.

Baron de Caters stated particularly that it is essential for a driver to know what he has behind him in the way of coachwork when out upon the road. There could be no doubt at all that the equilibrium of even a heavily-built chassis was materially affected by the erection thereon of a large house-like body, and anyone insisting upon such coachwork should be careful how he went about the roads. Speaking for himself, he thought no form of coachwork for touring purposes should be other than open, covered merely by a hood when the weather was bad. He did not deny, however, that the larger forms were quite permissible, but they should be used in a careful manner and never overcharged with luggage. The closed body was to-day just as essential as the open one. All it was necessary to guard against were ignorance, carelesness and exaggeration.

Insofar as the American types of limousine body are concerned, it would appear that as yet but few of them have reached a point where they may be considered at all a menace to safety on this account. Yet the growing popularity of the closed car, and the rapidly increasing demand for the most luxurious types of vehicle to be had upon the market would make it seem that even though the danger point has not yet been reached, it might arrive within another season. In part, as has been suggested by Mr. Kellner, this is due to the desire of the motorist himself, to excel in traveling comfort. The result of this brings about a hiatus betwen the work of the chassis builder and the body-builder. The chassis is bought, and the body is designed to fit it, and in this design, no considerations enter which may be considered as based on engineering principles alone. The questions of size, weight, balance and distribution of load, are decided with an eye to symetry and the inclusion of all the prospective owner's wants, rather than with an eye to maintaining a low centre of gravity, and eliminating all tendency to lateral oscillation when on the road.

Of course, in any rapidly growing industry, there is always someone to cry "wolf" when frequently there is no wolf at all. But in this case, the fact remains that there is a trend, and apparently a growing one, leading toward a condition which would be distinctly a menace to the art. Hence, it is high time for the maker, the dealer and the user to impress upon themselves the differences in intent between the various types of car, and the fact that no single type of chassis is well adapted to a wide variety of uses, and high time for the body makers to assimilate the idea that their work must be done in harmony with that of the original designer of the chassis, at least, so far as this consideration alone may obtain.

To Remove Interior Incrustation.

Occasionally, when the water in the cooling system of a motor has been allowed to boil excessively, or when it has not been drawn off for a considerable time, an incrustation similar in nature to boiler scale may be formed, thereby lessening the section of the piping, and reducing its conductivity. To remove this a strong solution of caustic soda should be used, the motor being run sufficiently to heat the jackets and pipes and to cause a complete and thorough circulation of all the contents, while the cleansing operation is in progress. After perhaps half an hour of this treatment, the system should be drained completely and flushed with pure water until no signs of rust or other impurities appear at the outlet.

Even omitting to consider the possibility of the accumulation of scale in the radiating system of the car, it is a wise plan to flush out the radiator and piping from time to time as occasion permits. This may best be done by slipping a length of large hose over the filling tube in the radiator, and allowing the water to overflow until it runs perfectly clear. If the motor is turning over slowly at the time, it will insure the thorough rinsing of the jackets at the **same time.**

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APPLYING MILORI GREEN

Enduring Popularity of this Old Color and how to Obtain Best Results.

"For something like a quarter of a century, at least, milori green has enjoyed varying popularity. Experts have rejected this color of peculiar fascination only to accept it again with renewed favor," says the Carriage Monthly.

"Milori green is a green of cool, summery effects, and while there is an apparent rawness to it, there is at the same time sufficient exclusiveness about it to overbalance any defect to be noted on that score. And it will be confessed by those who have been slow to recognize the merits of this color, that it is a pigment of beautiful tone, with a showiness that is to be remarked of no other green adapted to truck equipment.

"The surface preparatory to receiving the green is brought up in the usual way. The body is primed, given a coat of lead, puttied on this coat, then given four coats of roughstuff, and rubbed out smooth, level and clean.

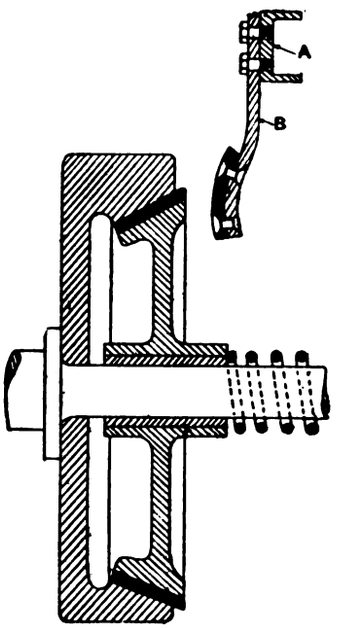
"Set aside, after rubbing, for several hours; or, better still, over night, for the surface to dry out and expel the moisture. Then with No. 00 sandpaper work over the surface to loosen up any possible accumulations, dust off carefully, and apply a ground color made up a bit lighter than the milori green by uniting chrome yellow with Prussian blue and white. Use a few drops of raw linseed oil in beating up the three ingredients, and then thin out to the proper brushing consistency with turpentine. Apply with a 2½-inch camel's hair brush, with 1-inch brush of the same kind for dressing up around moldings, etc. Should the coat prove a little weak in solidity, apply a second coat.

"Then apply a coat of the milori green mixed with a binder of raw linseed oil to dry without gloss and yet with enough 'live' look to it to insure against powdering, etc. Now make up a varnish-color by beating the pigment to a creamy consistency with turpentine, and then adding elastic rubbing varnish in the proportion of ¼ pound of color to 2½ pounds of varnish. Use a half elastic flat bristle-brush—2½ for the large panels and a ¾ and 1½-inch for the small ones—to apply the varnish color, and lay on a full, rich coat, devoid of runs, sags, etc.

"We suggest the use of varnish-color because this green to a greater extent than many others is susceptible to the illuminating power of varnish mixed with it, and is thereby rendered more brilliant in its color tone. Rub lightly on this coat with water and No. 00 pulverized pumice stone, using a soft piece of broadcloth, or a wool sponge, as the rubbing medium. Strips with lines of flake or body white, or light shade of French gray, cream color or chamois color. The lettering, if any, may be done in aluminum leaf, in gold or in any of the colors above noted. Deep yellow colors should not be used upon this green, as it produces, on the whole, unpleasant contrasts. Running parts, brought up in the customary way, and painted lighter shade of green, to be striped in harmony with the body. Finish with very light or colorless finishing varnish, in order to preserve the purity of the color."

Brake for Old Cars.

In old cars of the Panhard type, it not infrequently occurs that considerable difficulty is encountered in shifting gears owing to the continued spinning of the male clutch cone when disengaged. This is caused usually by friction between the parts, and occasionally is increased owing to a bend in the driving shaft. If such is the case, of course, it is essential that the defect be remedied without delay. Otherwise, no remedy is apparent other than the introduction of a brake upon the clutch disc.



Such a brake may be constructed as shown in the accompanying illustration, and should be so placed that it will bear against the rear of the cone when it has been drawn back to its extreme position. If strongly made, it even may be made to serve as an additional brake to the car by pressing the pedal firmly down without touching the gear shifting lever. Commonly, it may be used as a check upon the clutch during the process of changing, and in that capacity is very successful.

Its construction is by no means a difficult matter, involving merely a piece of strap iron or steel B, shaped as shown, and bolted to a cross member of the frame at A. Where no cross bar is accessible, it is even possible to bolt it to the flooring, though this is a less advantageous point of attachment. The face which is to come into contact with the clutch, should be covered with leather or fibre to soften its action and reduce the wear of the parts.

DON'TS FOR CHAUFFEURS

Some Unusually Good Advice Expressed in the Fewest Possible Words.

Don't race.
Don't graft.
Don't knock.
Don't be late.
Don't be dirty.
Don't experiment.
Don't get the big head.
Don't smoke on the car.
Don't let your car smoke.
Don't say, "That's good enough."
Don't use the wrong kind of oil.
Don't run with half-deflated tires.
Don't "borrow" tools from other cars.
Don't waste time doing unnecessary work.
Don't forget to say "Yes, sir" and "No, sir."
Don't talk about what you hear when driving.
Don't forget to read your batteries once a week.
Don't try to see how close you can come to everything.
Don't run with muffler open. It's a sign you're an amateur.
Don't tear the car down unless you know what you're doing.
Don't be afraid to ask for information. No one knows it all.
Don't try to run the garage until you can run your own car.
Don't take all your friends riding when you are testing a car.
Don't think that you know more about the design than the manufacturer.
Don't say you are getting $150 a month when you're getting $90.
Don't force your engine when its cold. Give the oil a chance to warm up.
Don't forget to let the clutch in gently. It's good driving—that's all.
Don't lie all over the cushions when you are waiting for your passengers.
Don't speak of the boss as "the old man" or "Smith." Better say "Mr. Smith."
Don't forget to change the oil in the crank case every 1,000 miles.
Don't curse the garage because you didn't see that your tools were in place.
Don't wait until time to start to find out if everything is filled O. K.
Don't forget the dealer is interested in your success and the success of the car.
Don't act like a kid around the garage or you'll be getting a kid's salary, perhaps.
Don't believe all the tales you hear about big wages and tips. Most of it's hot air.
Don't run without oil in the crank case and then say the engine bearings are no good.
Don't run with a late spark. It carbonizes your engine and is extravagant on gasolene.
Don't say some one has been monkeying with your car when you don't know what's the matter.
Don't try to see how quick you can stop.

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It's hard on the car from the crank shaft to the tires.

Don't tell your employer the garage does not half clean the car when you didn't give them a chance.

Don't force the car up every hill at its limit to show what it can do. It will be expensive for the boss.

Don't make adjustments on the street unless absolutely necessary, which isn't often the case with a good car.

Don't put in a new battery every time the engine misses. It may be a dirty commutator or a dozen other things.

Don't forget that a high-class chauffeur is never out of a job, and has the best cars to drive, to say nothing of wages.

Don't forget to see that every nook and corner of the car is clean when it goes out. If it is the cleaner's business to do it, see that he does it.

Don't forget that the best chauffeur is the one who goes the most miles with the fewest number of revolutions of the engine, and consequently less wear and tear, less oil and less gasolene.—Ex.

Gasolene 'Buses Enter Paris at Last.

On the 11th of the present month, which day marked the inauguration of the first motor 'bus service in Paris, there came to an end one of the most anomalous situations that has existed in the automobile world. For Paris, of all places in the world, has steadfastly and persistently refused to recognize the gasolene motor 'bus or have anything to do with it. Only after a long and discouraging siege, in which the red tape and inertia of the powers that be played their usual role, did the supporters of the movement succeed in obtaining a foothold in Parisian streets for the 'busses.

The Paris Omnibus Co. has ordered 90 vehicles of the regulation type which will be run over six different routes, principally from the business centre of the city to the railway stations and nearby suburbs. The Societé des Automobiles Brillé, which supplied most of the busses, gave a fete in connection with the inauguration of the service. It was very largely attended and the amount of enthusiasm and excitement that prevailed on the occasion were such as only a Frenchman can summon on an occasion of genuine importance. That it should be such to Paris seems beyond explanation.

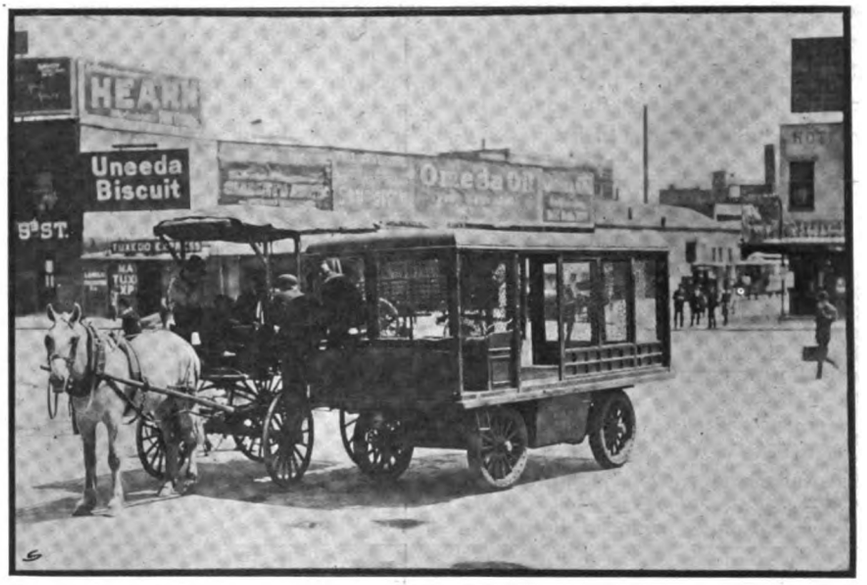
Salutations of the Chauffeurs.

When a man hires out as a chauffeur, he, in a sense, is apt to lose something of his personality and his identity often becomes seemingly merged in that of his employer. If Mr. Smith buys a car and employs a chauffeuf, the latter individual usually takes the name of Smith until he leaves his employ. On the road chauffeurs frequently find themselves addressed by the name of the cars they drive. "Hi there, Columbia," or "Slow up, Pierce," or "Turn out a little, Packard," are fairly indicative of the salutations often heard in touring.

THE OLD AND THE NEW

Chance Occurrence that Well Illustrates the Spirit of the Times.

Progress is so subtle a thing that its advance is only to be appreciated in retrospect, or on such ocasions as when the hand of change places directly in contrast samples of the old and the new and thus forces a comparison which otherwise would pass unnoticed. Trolley cars, for instance, have become so much a part of the citys' life, that they have ceased to excite comment even from those to whom they remain as they were in their earlier days, a source of mystery and occasional terror. Yet the incident of a trolley car running down one of the archaic horse-cars which still grace a few of New York's thoroughfares, while commonplace enough in itself, frequently draws forth a word of comment on the grotesquerie of the meeting.



With the motor vehicle, the contrast is as yet hardly so great, and possibly it never will be, yet the two occupy much the same relative positions as do the trolley and the horse car. It is the same mechanical power displacing the animal, the same advancement in substituting the chained forces of nature for mere brute power, and the same increase in practical efficiency due to the application of the inert machine to the work of the beast. The horse, however, is outside of his driver, the most ordinary thing imaginable on a street, while the motor vehicle still is somewhat extraordinary, hence, the one is regarded with curiosity, the other is unnoticed and the contrast passes unchallenged.

That there is ample food for profitable reflection in the frequent spectacle of the old and the new placed side by side on the street as an every-day occurrence, is perfectly evident. It is a contrast which illumines the advancement of the age, the possibilities of the mechanical arts, and the actual wastefulness of animal traction. Here, for instance, are contrasted two vehicles, of the same general nature, but of different carrying capacity, and different speed capabilities. Strange to say, however, the one which carries the least burden, and occupies the most room in the street, besides being less certain in point of absolute response to the will of the driver, is the representative of the traditional method of transportation—the horse and wagon of history past, present and future. The other may be too novel to meet with entire approbation from the masses of traffic handlers, it may be too undeveloped to furnish at all times the same certainty and economy of performance which is assured with the other, but it stands for progress—a monument to hard work, a utility as it stands, and a prophecy of what is to come.

Strikers Recover Odd Damages.

A curious aftermath of the recent labor agitation in the French coachbuilding industry which was extended to embrace the automobile makers, is the result of an action brought against the De Dion-Bouton Company, which has been ordered to pay a sum total of $2,420, in compensation to its employees for injury to them caused by the closing of the shops during the strike. The "lock-out" occurred on May 4th ult., when the factory was shut down after an invasion by strikers. In defense, the company claimed that it was a case of "force majeure," and the court agreed with them, but held them responsible for the loss to the men because they had not announced the length of the period of closing. Sums averaging $23.04 were awarded in damages to one hundred and five men. The case is reported by the "Temps" as being the first of its kind in twenty-six years.

Accumulator plates should be submerged completely in the electroylte at all times.

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LOW-PRICED CARS ABROAD

More Numerous than Most Americans Suppose is the Case—The Range and Power.

France, the birthplace of automobile fashions, and sponser for all that is elaborate and ornate in motor construction as well as for the more speedy types of machine, ever has been reputed to stand for the luxurious types and practically to ignore the desirability of the "poor man's car," and the amount of close selection in design and construction necessary to evolve it. For several years, America has held the lead in the production of cars of this type, the American runabout coming to set a standard for all other countries, both in appearance and in low cost of production. Now, however, the present season witnesses the partial abandonment of the typical runabout here in favor of the medium powered car of low and moderate cost, while at the same time, the French industry is seen to be gaining ground with the corresponding type of voiturette.

The history of the small car in France has been varied and not wholly creditable to the manufacturers, although its beginning was made at a time when elsewhere light machines were comparatively unknown. Beginning with the types of motor tricycle and quad car, which had considerable vogue at one time, and finally resulting in the evolution of the voiturette of the French De Dion type, a good measure of progress was made up to a period of two or three years ago, when they began to lose ground, owing in part to the rapid strides which were being made in the evolution of the touring car, both in light as well as heavy form. More recently, however, two of these types have begun to come into favor again, namely, the tri-car and the voiturette. Alike, they are very different from the patterns which gave them name, being, on the other hand, thoroughly modern, and wholly capable of performing the light service for which they are designed.

In the case of the voiturette, the old form of vertical motor placed under the seat, noisy and uncertain, has given way to the front vertical positioned motor, usually of but one cylinder, to be sure, in the cheaper cars, yet still far superior to the older forms. Replacing the antiquated types of transmission, are sliding gear transmissions of approved patterns, located at the rear of the engine and communicating with the rear axle through shaft or chain transmission as the case may be, while the control mechanism, including side levers and steering wheel, is completely modern. In fact, these cars, as a rule, are complete replicas in miniature of the heavier machines of the season, some of them, indeed, being turned out from the same factories as the high-powered cars and bearing similar characteristic marks.

Both in capacity and price, the French machines of this year form a fairly even gradation from the lowest to the highest, each step in the scale being covered by two or more makes of distinctive quality. Taking the price method of classification, a dozen or more cars are found under the caption of voiturettes and selling in chassis alone at something lower than $700. The body work usually is the simple runabout or cross-country type, seating two passengers, and carrying a tool receptacle of some size in the rear. Of the eleven cars the specifications of which are tabulated below, it will be noticed that the greater number are rated at seven horsepower, have shaft drive, weigh seven to nine hundred pounds, run on something over seventy inch wheel base, and sell for $550 to $600 in chassis alone. The wheel diameter is notably small, this being a characteristic of the early voiturettes, fostered by the universally smooth highways over which they are destined to run for the most part, and retained despite the growing favor with which the larger wheel is regarded by the designers of the big cars.

Belt transmission is to be found in a single instance, and single chain, in another, otherwise, the general specifications are remarkably uniform, the exceptional weight in the case of the Lacoste-Battmann, coupled with its low power serving to distinguish it as unusual. But a single two-cylinder car is included in the table, the Orel, which, notwithstanding this fact, is rated at only six horsepower.

Considering the arrangement of parts further, the typical voiturette of the time has its motor covered in with a large hood which frequently includes the water and lubricating tanks, the former being combined with the radiator, after the prevailing type. In nearly every case, circulating pumps are used, the thermo-syphon system being somewhat in question still, and mechanical oilers are the usual thing. Altogether, they may be taken as a class, to represent a creditable and well proportioned type of machine, well put together, efficient within the needs of the case, and handily controlled. They are a vast improvement over their predecessors, and a step toward the class of vehicle which the "poor man" has pictured in his mind's eye all along as being the most desirable. That attempts along similar lines have not been altogether successful here, may be the fault of circumstances, mistaken ideas in construction, or a lack of appreciation on the part of the buyer, but however that may be, the voiturettes seem to be vigorously taking on in France.

THE 1906 FRENCH RUNABOUT OF LOW COST:

Make	Horse Power	Motor		Drive	Weight	Chassis		Wheel Diam.	Price
		Bore	Stroke			Base	Tread		
*Alcyon	7	3.781	3.937	shaft	794	75	43	25½	$570
Cottereau	7	4.125	4.656	chain	992	65	44	27½	560
Delage	6	3.531	4.312	shaft	992	79	45	31	675
Helbé	4½	3.312	3.531	shaft	617	71	43	25½	535
Lacoste-Battmann	4½	3.312	3.531	shaft	1080	66	43	25½	454
*Lion (Peugeot)	7	3.937	3.937	chains	937	79	45	27½	735
‖Orel	6	3.343	4.718	chains	....	75	43	27½	530
Prima	7	4.718	3.937	shaft	1080	85	44	27½	381
*Reyrol	6	....	....	shaft	772	..	..	....	530
*Sizaire and Naudin	7	4.718	4.312	shaft	1102	87	45	27½	570
S. V. P.	8	4.125	4.312	belt	772	85	47	27½	675

*Two-seated body included in price. ‖Two-cylinder engine.

What Boiling Water Indicates.

Considerable agitation frequently is caused in the mind of the inexperienced motorist when he discovers that the water in the radiator is boiling furiously. As a matter of fact, however, this should be no cause for alarm, granted only that he is certain that the circulation is unimpared. For the motor always works to best advantage when it is kept at a temperature approximating that of boiling water, and so long as this is not seriously exceeded, and the loss of water due to the ebulition is made good by replacement, no harm can be done. The fact that the water does not begin to boil until after the motor has stopped, need cause no alarm, for it is usually caused through the stopping of circulation, and the consequent holding of the water in contact with the heated surfaces of the jackets. Left to itself, if there are no air leaks in the upper part of the system, it will merely cause a thermo-syphonic circulation which will continue until the surfaces have become fairly cool.

Care of the Accumulator.

As compared with dry cells, accumulators come high, but on multicylinder engines the service rendered more than compensates for the difference in price. Neglect or ill-treatment is what converts them into an expensive luxury, for the ignition cells are burdened with all the disadvantages of the larger sizes. A dry cell may be used until entirely exhausted and can be thrown away with no regrets, provided there are spares at hand, but running with an exhausted accumulator until the very last notch is reached, is one of the things calculated to do most injury to it. See that dirt is not permitted to accumulate in the bottom of the jars, keep the electrolyte above the plates and never permit the voltage to drop below 1.7 for each cell. These may be said to represent the storage battery user's trinity and if he observes them strictly, long life and good service will be his reward.

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PART THAT LUCK PLAYS

For this Dealer Contends it does Play a Part and Cites Instances.

Life is but a succession of small troubles and the same is literally true of automobiling. Great calamities or serious misfortunes happen to a man but once or twice in a lifetime and barring the wreck or accident that brings the same thing to a car, its existence is only marked by minor tribulations. What these will consist of and how often they will appear to bother the one whose duty is to remedy them, will depend upon a number of factors. "Some people say they have no trouble at all and others are in hot water all the time," was the frank reply of the agent of a well known car to an owner, whose place was in the second class. As the car was small, one of its defections were likewise diminutive—anything serious would have meant the dissolution of the vehicle.

But it is this everlasting petty tinkering that makes the maintenance of a car of any kind a burden to the man who must look after it. Take a serious defect of any nature and it lays the car up while it is being made good; once repaired it is done with and if the job be a good one no further trouble is to be anticipated on the same score. The small job, on the other hand, is a constantly recurring affair. Not always the same one, of course, and that is what makes matters doubly exasperating for after having gone over the car's mechanism and made good a number of small items that have been in need of looking to, the owner who does his own driving and maintenance, congratulates himself that the car is in good shape and for some time at least, will need nothing more in the shape of attention than the regular oiling and replenishment of the fuel and water tanks.

The first trip on the road brings to light something that he never gave thought to—something equally trivial, but just as much in need of attention as were the other details that received so much care only the day before. A car that forms that habit has probably been responsible for a return to Dobbin in more than one instance. It takes the new hand some time to realize that an automobile consists of something more than an engine and that even with the latter running in perfect condition, progress will often be impossible owing to some other defection—usually due to inability to apply the power to the driving of the vehicle. It has been calculated that of all road failures fully fifty per cent. are due to ignition troubles, with almost an even forty per cent. additional traceable to the fuel supply, so that as almost ninety per cent. of all "pannes" lead to the engine, there is some foundation for the belief that the latter is the seat of all trouble. But there are nine hundred and ninety-nine different parts of varying size most of them diminutive, constituting the remainder of the make-up of the machine, any one of which may need attention. Some one has figured out to a certainty just how many small pieces are required to complete a modern four-cylinder car and as the total was well in excess of a thousand the number given may be taken as well within the bounds of reason.

These are the causes of "mechanical troubles" and the term is a most comprehensive one. It may include anything from a stripped nut to a broken rear axle or a smashed differential, or again merely the lack of a split pin or lock nut that has permitted vibration free play and caused one of these fastenings to drop off. Fortunately it is very seldom anything so serious occurs as the more grave mishaps indicated. In fact, in the calculations referred to above the remaining ten per cent. is made up of a number of items, every one of which is very small, as for instance, one per cent. represents trouble with the differential over an extended period of time, and the same is true of the majority of the vital parts of the mechanical organization.

But regardless of their nature, the constant recurrence of troubles of any kind makes motoring far from being a pleasurable pastime, and this is particularly so where they are of that trivial order that may best be termed unnecessary causes of delay. That is, they should not happen on a machine that receives any kind of systematic attention. Constant stoppage from causes of this nature is usually considered the heritage of the second-hand machine and experience has borne this out in so many instances that there is a firm foundation for the belief. But, unfortunately, it is not confined to the old-timer that has been racked to pieces and which no amount of overhauling short of rebuilding could suffice to guarantee against defective parts. It is characteristic of some new machines and more than may be supposed. Where it occurs in an isolated instance, it may sometimes be attributed to careless inspection at the factory, or too great freedom on the part of the driver with roadside obstructions, for there are some to whom trees, posts and other impedimenta have a fascination that is irresistible and their cars bear the tell-tale evidences of frequent and forcible impact with things unyielding, in the shape of dents and scars on mudguards and radiator. The experienced eye can single out the machine that has been "bumped" promiscuously at a glance. And a few good jolts will do more to shake up a car and loosen things generally than a season's steady running. Its fastenings may hold and give no sign of having suffered, but they have been strained right up to the breaking point in many instances and the frequency with which one or another causes trouble and needs replacement is conclusive evidence of the fact.

But take a new machine—often one that has not been out of the factory for a fortnight, and all these ifs and ands regarding the treatment it has received must be eliminated—it is supposedly perfect—nearer perfection, at any rate, than it ever will be at any subsequent time in its history, for a machine is never new but once. Under such circumstances, superstition will take hold of the most reasoning and reasonable of individuals and the whole thing is put down as a matter of luck, and there is every reason to believe that persistent ill-luck has been responsible for souring more than one enthusiastic convert to the pastime, causing him to give up in disgust finally as being all work and no play.

"Speaking of luck," said the agent of a well-known American car, a few days ago, just to cite an instance of the persistence with which misfortune will sometimes dog a man's steps through thick and thin, "there's a man who lives not far from the city to whom I have sold two cars since the opening of the season and it's the third car he has had in less than a year. About last September he finally decided to buy a machine as much for business use as any other as he is a real estate broker in the country and it is nothing unusual to have to drive twenty to thirty miles or more every day in the week. A man doesn't like to use his own good horses for such hacking service as that, so this firm depended on the livery stable altogether and their bills were not small. His first purchase was a runabout of standard make. There are hundreds of them running around all the time and it's the exception to see one of them in trouble. But this man's ill-luck attended him right from the start. The machine would balk on the most inconvenient occasions and leave him and his passengers stranded several miles from nowhere.

"It was one of those cars that are built on the 'get at things with the body off' principle and unfortunately for its soundness, the body is always in place when you do want to get at them. It would take a professional contortionist to reach some of the parts and what is worse, getting at anything at all about the engine meant dirtying your clothes and that's a fatal defect in a car for business use because a man can't be everlastingly going around in old, dirty clothes during business hours and the certainty of coming back from even a short trip with hands and clothes greasy is not alluring.

"Well, a few months, probably less than ninety days altogether, was enough for him with that machine. He sold it to a livery stable keeper who has run it ever since, and that is about nine months ago, with scarcely half an hour's trouble in that time. That's where even the hard headed individual has to give up and say 'luck.' There's no getting around it. If the machine happened to act in the same way regardless of who ran it, most people would say 'hoodoo' without a moment's hesitation, and be pretty near it, too, in my opinion. His first experience didn't sour this fellow on the automobile generally. He put it down to a mistake in the choice of a machine and stuck to the 'try, try again' principle. It

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was close upon winter then and while my faith in the capabilities of the automobile is absolutely unbounded, for business, if not on general principles, for I've taken a car over about as bad a road as any four-wheeled vehicle could travel, I would be one of the first to say 'back to the mare' if I had to travel those up-country cow paths regularly in winter. An occasional trip over them wouldn't be so bad, but making a business of trying to run a machine over them at that time of the year would be a poor investment. They pack smooth and even in the summer time, except for the occasional sand pit and those things will bother you at any season of the year unless you have plenty of power, but in winter the whole road surface becomes like a frozen relief map of Switzerland. The snow becomes two feet deep if the winter is hard and if a rain and a freeze happen to catch them in that condition, life is too sweet to attempt them with an automobile. Even the farmers stay at home on such occasions and draw on their supplies of potatoes and smoked pork.

"But to get back to the unlucky individual. Both he and his partner made the round of the shows conscientiously last January and finally he invested in another runabout—one of the two-cylinder type, while his partner bought a touring car of the same make. That was where I first began to figure in the story. When you buy a new car it is only reasonable to suppose that it is good for a few months' service without default, but his ill luck kept after him hot foot, while his partner never had five minutes' trouble with his car and uses it constantly. Except for the difference in size, both cars are identical. To make a long story short, after having been towed in once or twice, besides suffering other minor troubles, my man disposed of his car again. He hadn't lost faith in the make of car but decided that runabouts weren't in his class anyway, so I sold him a touring car which is an exact duplicate of the one his partner bought and we have sold at least five of our cars in that town in addition without receiving any complaint.

"Evidently he wasn't born under a lucky star and is destined to have trouble—in the automobile line, at least, regardless of what car he owns. All small things—those petty little breakdowns such as a loose battery terminal, dirt on the timer or in the gasolene—the kind of trouble that anyone experienced in the business will promptly tell you 'should not happen to a car if it were looked after properly.' That is all very well on general principles, but from necessity I have had to make it my business to see that this particular car was attended to in good shape and I know that it received excellent care. And it isn't all the car's fault, by any means. It's just this fellow's confounded ill-luck that seems to follow him. For example, he started out with a party last Sunday to make a long run. Got away good and early, too. There were seven or eight gallons of gasolene in the tank, but to make assurance doubly sure he decided to fill it. The engine was performing in good shape. As the town's only garage wasn't open at that hour, he ran down to the water front and filled up on what an old shellback assured him was 'automobeel gasolene.'

"Everything looked promising for a long day's outing, but he hadn't gone half a mile before the engine began to act queerly. Would stop every few minutes, wouldn't respond to the throttle; opening it would choke her off in that disgusting way that it has of doing and the engine began to overheat badly. He told his tale of woe to a friend of mine who knows him and the last he saw of him was in front of the town garage dumping out the contents of the tank and filling her up again. It was then around twelve o'clock, and considerably later than the party had expected to be there, you may well imagine. No, you may put it down to anything you like, but you can't make me believe that its anything more than a streak of fool luck with which that fellow is afflicted and no matter what machine he buys he seems to be in for trouble. Take my word for it and put it down to bad luck. Sooner or later it will sour him on the whole business if he doesn't get a little more fun and less fussing out of owning a machine, just as it has many a man before him."

The Insurance Man's Statistics.

Just to while away the time, an insurance actuary has calculated that if all the automobiles in the United States were to be destroyed simultaneously, the loss would be almost equal to that brought about by San Francico's recent earthquake and fire. He further figures that it is safe to say that the majority of the cars are insured against fire, theft and collision generally, for at least 80 per cent. of their value, adding that "there are very few men who care to carry the risk on their cars themselves, particularly when the fire insurance premiums are only 2½ to 3½ per cent.

Next to this comes insurance against liability for personal injuries, and it is a form of insurance that is very much favored by the motorist. As a matter of fact, it is frequently considered of more importance than fire, for it is estimated for every car that is injured or destroyed by fire at least two are the cause of injuries resulting in damage suits. That the latter almost invariably result in heavy judgments if the case reaches a jury, goes without saying. Then again loss by fire is limited to the value of the car, but there is almost no limit to the possible loss and expense in accident cases.

The premium for liability is based on the horsepower of the car, and except in the case of low priced cars, comes to about the same amount as for fire insurance. On the basis of an average horsepower of 18 to 20 for all the cars in use, the premium for a liability policy carrying a limit of $5,000 in case of injury to one person, or of $10,000 where more than one person is injured in the same accident, would be in the neighborhood of $40 annually, depending upon the locality.

Oddity of Quebec's Licenses.

The taxes imposed by the province of Quebec on Commercial travelers and companies is giving rise to a great deal of trouble. The tax on travelers is semi-annual and varies in amount according to the character, wholesale or retail, of the houses visited. A traveler may have to pay $200, according to the conditions of his sales. For instance, if a traveler selling automobiles sells direct to the consumer, he must take out a $200 license; if he sells to a dealer for retail to the consumer, the charge is $100, and if to large concerns which resell to dealers and not to consumers direct, the license is $50. If the business is done through a commercial traveler, the commercial travelers' tax is payable. If the agent has a fixed place of business, then the firm he represents becomes liable to the percentage tax. This is a tax levied upon companies doing business in Quebec. This tax amounts to one-eighth of 1 per cent upon the amount of paid-up capital to $1,000,000, and $50 for each $100,000 or fraction thereof above $1,000,000. An additional tax is leviable of $50 for each place of business, factory or workshop in the cities of Montreal and Quebec, and of $20 for each place of business, factory, or workshop in every other place.

Jerseymen Form Stage Line.

The East Jersey Motor & Transportation Co., capitalized at $100,000, has started its automobile line between Elizabeth and Rahway, and six Knox 'busses have been purchased to open the line. The cars start at half hour intervals from regular stations at Elizabeth and Rahway, and on the route run through Roosevelt (formerly Carteret), Woodbridge, Boynton Beach, Sewaren and Port Reading. This entire section has hitherto been without adequate traffic facilities. The towns are not connected by trolley lines, but the growing population and business interests between the different localities led to the formation of the company. George W. Bauer is president; R. T. Potts, J. P. Williams and Sidney Harris, vice-presidents; George W. Bauer, Jr., secretary and Herman Gries, treasurer.

Why he Buys American Goods.

"I am a great believer in British goods, but it is often much easier to buy from a foreigner, because he gives you a lot of particulars and choice," writes a New Zealand engineer and agent, to the British Empire Motor Trades Alliance. "It must always be remembered that it takes a colonial three months to send for particulars and get his reply from England, but only half that time from America. We do what we can for old England here. We charge foreigners an extra 10 per cent duty on cars complete and 20 per cent. on engines.

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CARS ARE REPLACING CAMELS

So Reports an American Consul in Egypt—The Types of Cars Desired.

At present Egypt is a poor country for automobiles, but prospects for their use, and the relegation of camels to the arid deserts, will in a few years be an actuality, according to a report of the United States Consul-General at Cairo. Probably one of the reasons automobiles are not more in use in the land of pyramids, sphinxes and the heaven of would-be egyptologists, is on account of the miserable roads, or rather the lack of roads. More traffic is carried on between Cairo and Alexandria, perhaps, than between any other two points, but there is no road proper between these two important cities, indistinct camel paths marking the way.

At Cairo the longest drive is eight miles out to the pyramids, and probably this never would have been constructed were it not for the never ending stream of tourists who daily visit the famed tombs, which are considered one of the seven wonders of the ancient world. On the other side of Cairo, there is only one road, which extends four or five miles in the direction of Abbassiah. Frequently the trip has been made to Ismailia, but those who have made the journey by horse and carriage never want to repeat the performance.

However, notwithstanding its deplorable lack of roads, Egypt boasts of many automobiles and their introduction is bound to result in various kinds of good. For one thing, it will necessitate the building of roads. At present, automobiles are confined almost solely to Cairo and Alexandria, and in the latter city they are becoming so numerous that a garage will be built before next winter.

Another thing that will favor the introduction of automobiles in Egypt is the stamp of government approval. It is asserted that the government is preparing to use automobiles in the police inspection service in the desert region lying between Edfur and the Red sea, which is the gold mining country now being considerably exploited. The compact sand offers almost natural roads, and it is estimated that it will cost only from five to ten dollars per mile to make them perfect. In fact, the government has been experimenting with the automobile for this purpose in a small way and it has succeded very well, so far. Where formerly the police inspection was made on camels, requiring six weeks or more, the trip can now be made in less than two weeks.

One of the main drawbacks to automobiling on the deserts is the shifting sands, and also the heat, and as this has existed since Egypt has, there seems to be no way of overcoming the difficulty; the automobiles will have to be constructed especially with the object of overcoming these climatic drawbacks.

There are two agencies in Cairo and two in Alexandria, reports the consul-general. In the former city 175 cars are registered, while Alexandria has sixty-six. An automobile omnibus company seems to have met with success in Cairo. At present it has four large machines on the streets and it has ordered eleven more.

For the benefit of American automobile manufacturers who may entertain ideas of bidding for Egyptian trade, the consul-general sends a naive, but none the less interesting extract from a memorandum of the Governor of Soudan. It is as follows:

"A car of suitable design for the Soudan should embody the following details: Powerful engine; metal wheels; substantial gear-box, with high and very low gears; efficient radiation; clutched to withstand frequent slipping; strong springs; weight suitably distributed on the frame; carrying capacity for large supply of fuel and water, spare parts, and a certain amount of luggage; and all working parts must be carefully inclosed as a protection against sand.

"Motor cars for the eastern desert district of Egypt (the mining district), however, should come within the following specifications: Light cars, capable of carrying two people and hauling two in trailer; water and radiator value up to 100 miles at average mean speed of 10 miles per hour; petrol capacity, 120 miles; cars well sprung fore and aft on long springs; pneumatic wheels for cars averaging 15 miles per hour; cushion or solid tires for cars averaging 10 to 12 miles per hour; power, 6 to 12 horsepower for light cars, 9 to 15 for heavy; light cars to average 15 miles, and heavier 10 to 12, and pull 7½ hundredweight plus weight of trailer; front wheels, 36 to 42 inches diameter, with 4 to 6 inches face; rear wheels 26 to 32, with 5½ to 9 inches face; engine, two cylinders, simple, and as near fool proof as possible; firing accumulator and coil, also magnet, methods unchangeable; gear cannot be too simple or strong; reverse on heavy cars, but not on light; speeds, two—top 12 to 15, bottom 3½ to 5; pedal clutch; pedal brake and lever brake, former on front wheels, latter on back; engine speed not over 1,000 per minute; lubricating as near automatic as practicable; lights, carbide, with lens fronts; oil tanks not less than 200 miles capacity; carburetter approved float type. Essentials: Light and strong, easy on track, as near fool proof as possible."

Goggles that Permit Looking Backward.

It seems odd that no one has thought of them before—the goggles which enable one to see behind as well as before. They are of liberal dimensions with rectangular glass "fronts" except where allowance is made for the nose. By looking through the glass sides the vision is directed against two small mirrors mounted on outriggers on the frame and slightly tilted backward. As utility and not ornament was the object of the maker, there is no need to dwell upon their beautifying characteristics.

WHEN THE CAR SPRINGS ALEAK

Usually the Remedies are Simple and Prompt Attention is Well Repaid.

If taken in time a leak in the circulation of the cooling system may often be eliminated without any trouble, and next to dripping oil wherever it comes to a halt, the car that is constantly leaking hot water at every stopping place, appears to represent the acme of slovenliness. This to the eye of the trained motorist, of course, for it is a custom that has become so prevalent that the general public has come to look upon dripping oil and water as the natural concomitant of the automobile and it takes no Sherlock Holmes to discover the resting place of a car if it stood there more than momentarily. Water does not cost anything as compared with lubricating oil, so there would appear to be more reason for not allowing the latter to ooze out of various cracks and joints, but as a general rule the quantities of each deposited are about the same.

But even if water is always to be had for the asking it is a good thing to promptly attend to the leaky joint as soon as it begins to manifest these symptoms. A turn or two of one of the unions may remedy it and this is something that should be done to all the unions on general principles once in so often as the rubber or leather washers which make them watertight gradually wear away and this should be taken up. If tightening fails to correct the trouble the only thing usually needed is a new washer. The same thing applies to the glands of the stuffing-boxes on the pump; they require taking up occasionally and when the pump still persists in leaking after this operation, new gaskets are required. Unless the car has been unduly strained or been in collision, there will seldom be anything amiss with the cooling system other than the trivial and easily remedied defects just noted. Like many other things, they will lead to nothing if taken in time, but it is surprising what a quantity of water will leak away unnoticed through an outlet that does not permit the passage of more than 20 or 30 drops a minute.

Coating of Carbide.

When it is thought desirable to use coated carbide for the lamps, it should be borne in mind that a very good variety of the home-made article can be secured by immersing the ordinary carbide in a bath of common lubricating oil for a few minutes.

It is essential that the tops of accumulator cells be kept clean and free from accumulations of every description, as they tend to produce short-circuits between the terminals and destroy the life of the charge.

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How the Oklahomans do Things.

It is not often that one hears of a man who is so strongly impressed with a particular car by seeing it on the street, that he will buy one. But such are the facts in connection with a recent sale made by the Northern Motor Car Co. to the Hon. Wm. Grimes, of Guthrie, ex-territorial secretary of Okhahoma.

Mr. Grimes was visiting friends in Dayton, Ohio, and was so attracted by the way a Silent Northern touring car moved round the busy thoroughfares of that city, that he decided it was up to him to show the Guthriettes. He went direct to Detroit from Dayton in company with Mr. Johnson, of Cuba, and visiting the plant of the Northern Motor Car Co. saw how the car was made from start to finish. Both Mr. Grimes and Mr. Johnson purchased cars.

Mr. Grimes is a firm believer in the movement now on foot to check the high freight rates and does not intend that the railroad will make any money off him if he can help it, so he and Mr. Johnson drove their cars back to Dayton from Detroit and will go from Detroit to Guthrie, Oklahoma, a distance of some 1,800 miles.

Davis has an "Automobile Cat."

The Davis Automobile Co., of Providence, R. I., boasts of an "automobile cat." One day a couple of months ago this yellow exponent of feline sagacity appeared uninvited at the garage and immediately ensconsed herself in the corner of a plush cushioned limousine without so much as a "by your leave." She has remained ever since and has shown a remarkable fondness for investigating the mechanism of various machines that are stored in the garage. The cat's olfactory organs have apparently been educated to the point where gasolene has become the sweetest of perfumes, but the animal's habits in other respects betray plebeian antecedants. When a motor car draws up in front of the building, the cat invariably climbs up on the seat, looks over the steering wheel, sometimes wanders into the tonneau, and then descends to the ground, where it curls up between the front and rear wheels. It is familiar with the signs of starting, however, and is safely out of the way before the wheels begin to turn.

To Remove Dust from Clothing.

Dust in the motorists' clothing is driven into the meshes of the weave by concentrated air pressure, reasons a profound student of philosophy, therefore to remove it, apply a reverse pressure, or, in plain words, use a vacuum cleaning method. To do this, he further suggests that a simple and effective way would be simply too hang the clothing over the front of the radiator and speed up the motor, with the car at rest, when the suction of the fan should prove sufficient to thoroughly renovate the material. Whether he himself has tried it, he fails to state.

Simplon Pass at Last Thrown Open.

At length, and after years of agitation, both favorable and unfavorable, it has been decided to throw open the famous Simplon Pass, in the Swiss Alps, to automobilists. Recently, a delegation of the Swiss Automobile Club traversed the pass in a body, occupying seven touring cars, and accompanied by certain officials of the state, made a careful survey of the ground. Following a banquet held at Simplon village, the following regulations were decided upon:

"Only duly authorized chauffeurs holding permits will be allowed to make the journey.

"No crossing of the pass by night is to be allowed.

"Before traversing the pass, notification must be made to the gendarmerie of Brigue, on the Swiss side, or to the gendarmerie of Gondo, on the Italian side, who will give applicants a permit, on which the rules and conditions are printed.

"No automobile will be allowed to cross the Simplon in less than four hours and a half. Speed will be checked by officials at places on the route.

"Automobiles will be allowed to cross the pass in June and September, excepting Thursdays, Saturdays and Mondays, and during July and August every day except Thursdays.

"Automobiles meeting carts or carriages must take the outside."

For Dustless Roads in Pennsylvania.

State Road Commissioner Hunter, of Pennsylvania, is of the right sort. Not content with building new roads in more than half the counties of that State and improving others, the commissioner has decided to make traveling upon them pleasant for all users of the highways by devoting a portion of the revenue derived from the sale of State automobile licenses, to experiment with mixtures designed to solve the dust problem. It is the commissioner's aim to have a system of dustless roads as well as simply building roads and to determine the best dust allaying process, he will begin experiments upon a stretch of road near Jenkintown. It is estimated that before the summer ends, more than two hundred miles of new roads will have been built in Pennsylvania. The revenue from the sale of license tags already has reached $33,000, most of which has been devoted to the highway improvement fund.

Why His Fine was Reduced.

"For the sake of the drivers' mother" and because "the car broke down twice" on the road, an Irish sergeant reduced the fine for overspeeding from $10 to $5. This is literally "in the discretion of the court." If the driver had been ingenious and cooked up another equally weighty reason he might have escaped scot free.

The Pursued and the Pursuer.

An amusing occurrence took place in Dublin recently in which the ordinary prejudice of rural mankind against the motor vehicle was responsible for decidedly ludicrous results. A woman living in the poor quarter of the town found her child nearly drowned in a tub of water just as an automobile was pasing. She rushed out, intending to carry the child to a hospital, screaming loudly all the while. The driver bade her get into the car and he put on full speed and headed for the hospital. An intelligent constable, however, jumped to the conclusion that here was another "motor car outrage" and he incited several cyclists to pursue the car while he followed as best he could, thinking the automobilist was abducting the 'respectable female and her child," as he later explained. Ultimately the automobile drew up in front of the hospital and the woman and child got out to be attended to, just as the constable in another car he had impressed into service, dashed up, and placed the motorist under arrest. When finally he was made to comprehend the true state of affairs, the constable's face was a study in multitudinous expression.

Attempted Murder, French Style.

That "troublesome chauffeur problem," has been revived once more in Paris on account of the recent attempt of a "celebrating" member of the ilk to destroy his car and its passengers by running full tilt into a railroad crossing gate. The car had been taken without leave after an afternoon of service, and loaded down with a group of the chauffeur's friends, had been out to Versailles. Returning to Paris very early in the morning, an altercation arose, when the chauffeur suddenly called out, "I will kill you all," drove into the gate. Despite the fact that the car was reduced to its original elements, no one was seriously hurt. The incident, however, has served to set "all the world" talking about the recklessness and unreliability of the chauffeur.

Tire Thief Operating in Boston.

Boston has a new kind of thief to disturb the usual even-tenored feelings of its motorists. This is a tire thief and he has been operating with "middling" success in the Back Bay section, stealing spare shoes and tubes that are strapped to the cars left standing at the curb by persons, while they are in the clubs, hotels, stores or their homes. The police have been notified and an attempt will, of course, be made to apprehend the miscreants.

Spain Waives Tourist Tax.

Due to the efforts of the Automobile Club of San Sabastian, Spain, the tax of six pesetas, or about one dollar and twenty cents, which hitherto has been levied upon all automobiles entering upon Spanish territory, has been abandoned.

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The Week's Patents.

823,083. Roller-Bearing. William H. Russell, Douglastown, Canada. Filed Aug. 27, 1905. Serial No. 257,565.

Claim.—In a bearing, a plurality of rollers having concave pockets in their ends, rings adjacent to the ends of the rollers, said rings being L-shaped in cross-section and having concave pockets in their inner faces oppositely disposed to the pockets in the rollers and annular channels in their outer faces, a series of ball-bearings in said pockets, a second series of balls disposed in said annular channels, said second series of balls having a larger diameter than the depth of the channels in either direction, collars adapted to contact with the second series of balls, an adjusting-collar located at the end of the bearing and a dust-cap covering said adjusting-collar and said dust-cap carrying a dust-brush adapted to bear against the adjustable collar.

823,039. Valve-Gear for Explosive-Engines. Frank B. Ells, Hutchinson, Minn. Filed July 25, 1904. Serial No. 217,917.

Claim.—1. In an explosive-engine, having an exhaust-valve, fuel-oil-supply device, an engine-driven lever operatively connected to said exhaust-valve and to said fuel-oil-supply device, and a shifting fulcrum for said lever normally disconnected therefrom, operated by the engine and adranged to be thrown into action on said lever once for each two rotations of the engine crank-shaft, substantially as described.

823,115. Muffler. Benjamin A. Gramm, Chillicothe, Ohio. Filed Dec. 8, 1905. Serial No. 290,863.

Claim.—A muffler made up of two compartments of unequal volume, the inlet-compartment being of substantially twice the volume of the outlet-compartment; each of said compartments comprising an end piece and a series of concentric cylindrical shells one end of each of which is mounted in one of said end pieces and the other end of each of which is mounted in a partition which separates said compartments from each other; the outer shell of each compartment being imperforate and the other shells thereof being perforated; and said partition being formed with apertures extending entirely around its outer edge between the walls of the outer and the next to outer shells.

823,163. Headlight Control for Automobiles. Jacob S. Detrick, Baltimore, Md. Filed Sept. 9, 1905. Serial No. 277,652.

Claim.—1. The combination, in a vehicle, of a rocking upright member, a lamp supported by said rocking member for horizontal movement, a rocking pivotal member located in parallelism with said first rocking member, means connecting the two rocking members, a foot-lever pivoted to said rocking pivotal member for horizontal movement, a connection between said foot-lever and said lamp and comprising a rod having a universal connection with said foot-lever and with said lamp, the organization being such that on the movement of the foot-lever in a vertical plane the lamp will likewise be swung in a similar plane and on the operation of the foot-lever in a horizontal plane in either direction both of said rocking members will be rocked simultaneously and the lamp swung in a horizontal plane.

823,178. Frictional Power-Transmission Mechanism. Ivert Larsen and Robert Hardie, Chicago, Ill. Filed Nov. 17, 1905. Serial No. 287,792.

Claim.—1. In a frictional power-transmission mechanism, a rotative driving-shaft, two opposing, rotative, indirect-drive friction-disks, a wheel on said shaft for driving said disks, a friction transmission-wheel having peripheral engagement with adjacent faces of said disks and movable toward and from the centers thereof, means for transmitting pressure to force the disks into operative frictional contact with said transmission-wheel and springs through which such pressure is transmitted.

823,185. Air-valve for Gas-Engines. Reuben Miller, Jr., Pittsburg, Pa. Filed Jan. 27, 1905. Serial No. 242,945.

Claim.—1. In an automatic valve, the combination with a radially-apertured casing, of a radially and axially apertured piston therein, the radial apertures of said casing and piston being adapted to register on movement of said piston, a yielding member having its respective ends secured to said piston and to one arm of a bell-crank lever pivoted to the other arm of said lever, for the purpose described.

823,260. Clutch. John J. Campbell and Hiram C. Johnson, Butler, Pa., assignors to T. W. Phillips Manufacturing Company, Butler, Pa., a corporation of Pennsylvania. Filed Dec. 28, 1905. Serial No. 293,634.

Claim.—1. In a clutch, the combination with a revoluble shaft, of a collar fixed upon said shaft, supporting-plates carried by said collar, said plates having guideways formed therein, pinion-carrying plates secured to said supporting-plates, a pulley revolubly mounted upon said collar, shoes mounted within said pullev and adapted to engage the inner sides thereof, racks carried by said shoes and engaging in the guideways of said supporting-plates, pinions journaled in said pinion-carrying plate, an outwardly-extending rod mounted in said pulley, a sleeve mounted upon said rod, means movable with said sleeve to move into engagement with said pulley, substantially as described.

823,286. Internal-Combustion Engine. Ludwig Mertens, Charlottenburg, Germany, assignor to "Abbé" Engineering Company, New York, N. Y., a corporation of New York. Filed Apr. 21, 1904. Serial No. 204,167.

Claim.—1. In a two-cycle internal-combustion engine, the combination of a double-acting combustion cylinder, a power-piston reciprocating in said cylinder, a feed-pump, a piston in said feed-pump, means operatively connecting the power-piston and pump-piston for importing to the latter a number of strokes which is a multiple of the number made by said power-piston, and means for conducting the explosive charge from said feed-pump alternately to the opposite ends of said combustion-cylinder.

823,347. Valve-Gear for Explosive-Engines. Albert C. Menges, Grand Rapids, Mich., assignor to William Harrison, Grand Rapids, Mich. Filed Dec. 23, 1904. Serial No. 238,140.

Claim.—1. In an explosive-engine, the combination of a revolving shaft, a primary cam device mounted thereon and revolving therewith, a secondary cam device slidably mounted on the shaft and engaging the primary cam device to be longitudinally moved thereby, an exhaust-valve, and means whereby the sliding movement of the secondary cam device actuates the said exhaust-valve.

823,382. Carburetter. Anders Akeson, Worcester, Mass., assignor to Standard Gas

WANTS AND FOR SALE.

15 cents per line of seven words, cash with order. In capitals, 25 cents per line.

A TEN PASSENGER wagonette; sample car, 1905-1906 model steam; price and description on application. THOMPSON AUTO CO., Olneyville Sq., Providence, R. I.

FOR SALE—Four new two-cylinder, vertical, Continental engines. Cylinders 4-inch bore by 4¾-inch stroke, about 12 H. P. Cash offer wanted; cost new $175 each. A. D. MEISELBACH MOTOR WAGON CO., North Milwaukee, Wis.

WANTED—Foreman in sheet metal shop, making automobile hoods, fenders, tanks, metal dashes, etc. Must be thoroughly familiar with most improved methods and machinery for reducing labor cost on this class of work. Please state fully experience and salary, also references. Address FOREMAN, Box 649, THE MOTOR WORLD.

WANTED—Position with an automobile manufacturer by a carriage man of 20 years' experience in office and factory. Address C. J. P., care Motor World.



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& Heating Company, Worcester, Mass. Filed Feb. 17, 1905. Serial No. 246,178.

Claim.—1. In a carburetter, the combination of a tank adapted to contain a hydrocarbon liquid; a vent-pipe secured to the top of said tank, and communicating with an opening formed in the same; a conical sleeve secured to the top of and depending within the tank, said sleeve having its larger end surrounding the vent-opening and provided with perforations communicating with the same; a liquid-fill pipe supported by the smaller end portion of said conical sleeve and projecting within the tank; a bracket secured on said fill-pipe, within the tank, and said bracket having an outer bifurcated portion; an arm pivotally mounted in the bifurcated portion of said bracket, and sair arm carrying a ball-float thereon, and a cork disk mounted on said arm and adapted to close the discharge end of the fill-pipe after the refill liquid has reached its proper level within the tank.

823,384. Spring-Wheel. Georgette Bardet, St.-Leu-Taverny, France. Filed Nov. 13, 1905. Serial No. 287,124.

Claim.—In a wheel having an elastic tire, the combination of a hollow felly having two lateral cheeks and a midian rib which form an E-shaped cross-section, pins secured to the median rib, and two undulated elastic rims the inner loops of which pass round the said pins and are capable of moving freely inward toward the bottom of the felly while the outer loops can slide freely between the said pins.

823,385. Motor Roller-Skate. Henry Beauford, Kansas City, Mo. Filed Oct. 2, 1905. Serial No. 281,040.

Claim.—1. An automobile skate comprising a body having front and rear supporting wheels, each provided with a gear-wheel, a longitudinal shaft having gear-wheels, an explosive-motor mounted on the body and having its power-shaft geared to one of the supporting-wheels, and an air-tank and a gasolene-tank for supplying the motor and arranged under the body between the said supporting-wheels.

823,450. Gas-Engine. Benjamin F. Stewart, Chicago, Ill. Filed Feb. 10, 1905. Serial No. 245,080.

Claim.—1. In a gas-engine, in combination, an explosion-chamber having admission and exhaust ports, means for closing the ports, a compression-chamber delivering to the admission-port of the explosion-chamber, an air-induction port and a fuel-induction port entering the compression-chamber, a suction-opened spring-seated valve for the air-induction port, and a gravity-seated valve for the fuel-induction port adapted to be operated independently of the air-valve by pressure within the chamber.

823,454. Vehicle-Wheel. Willard S. White, Chattanooga, Tenn. Filed July 29, 1905. Serial No. 271,739.

Claim.—1. In combination with a vehicle-wheel, an outer rim or tire provided along one edge with an outwardly-projecting tire-retaining flange and an inwardly-projecting bead, and having a rabbeted outer surface, a second rim having its body portion adapted to fit the rabbeted outer surface of the first rim and provided with an outwardly-extending flange adapted to embrace the edge of the previously-mentioned rim, and means of securing said rims to said felly.

823,467. Friction-Clutch. Harvey S. Glenn and Coulter E. Glenn, New Kensington, Pa. Filed Nov. 10, 1902. Serial No. 130,746.

Claim.—1. In combination with a shaft and with a wheel or pulley free to rotate thereon and relatively thereto, a plate or support secured to said shaft; friction-shoes pivoted to said plate and adapted to be pressed outward to contact with the interior face or surface of said wheel; links connected with the free ends of said shoes; a yoke or bail rotatable with the other clutch member, passing about the shaft and connected with the links and free to move in the direction of its length or at right angles to the axis of the shafts; and means to actuate the yoke by force applied from the side of the shaft opposite to that on which the links are located.

823,485. Carburetter for Explosive-Engines. William J. Steinbrenner and Godfried J. Mayer, Buffalo, N. Y., assignors of one-third to William H. Kreinheder, Buffalo, N. Y. Filed Mar. 3, 1905. Serial No. 248,303.

Claim.—1. In a carburetter, the combination of a carburetter-chamber having a conical wall provided with a port, a rotary conical valve lying against the inner side of said wall and having an opening therein, a vaporizing-nozzle terminating adjacent said port, a device for maintaining the level of the liquid hydrocarbon in said nozzle, and a throttling-valve between said conical valve and the combustion-chamber of the engine.

823,487. Speed-Changing Mechanism. Charles C. Williams, Cleveland, Ohio, assignor, by direct and mesne assignments, of one-half to George E. Harbaugh and one-half to Webster F. Traves, Cleveland, Ohio. Filed Jan. 16, 1904. Serial No. 189,323.

Claim.—In speed-changing mechanism, the combination of two rotatable members; a liquid-reservoir conected with one of said members; two pairs of pump-cylinders carried in said reservoir and having fluid connection therewith; two pairs of pistons adapted to reciprocate within said pump-cylinders, respectively; yokes connecting said pairs of pistons, respectively, and provided with guiding-surfaces; a crank-shaft connected to the second rotatable member; a cross-head journaled on said crank-shaft and guided on the surfaces of said yokes; and manually-operated means adapted to control the amount of liquid flow between said reservoir and said pump-cylinders.

823,522. Controlling Mechanism for Automobiles. Benjamin A. Gramm, Chillicothe, Ohio. Filed Nov. 17, 1905. Serial No. 287,-891.

Claim.—In a controlling mechanism for automobiles, the combination of a supporting-frame; a power-controlling lever mounted therein; a speed-controlling lever mounted in said frame, and a swinging bar pivotally mounted in said frame between said levers, said levers lying on opposite sides of said bar, said bar being formed with a notch in one of its ends shaped to receive one of said levers and holding one of said levers locked while the other is free to move; the movement of one of said levers shifting said bar toward the other lever to lock same.

823,524. Differential-Gear Casing. Emmet P. Gray, Cincinnati, Ohio, assignor to Gray Manufacturing Company of Detroit, Detroit, Mich., a corporation of Michigan. Filed Jan. 2, 1904. Renewed Feb. 19, 1906. Serial No. 301,913.

Claim.—1. In gear-casing construction and in combination, tubes adapted to inclose shafts, said tubes having one end split, said split portions being spread to form frames embracing the adjacent ends of said shafts, and means for securing said frames together to maintain said tubes in proper alinement, substantially as described.

823,529. Spring-Wheel. Edward V. Hartford, New York, N. Y., and August W. Scheuber, Hoboken,. N. J.; said Scheuber assignor to said Hartford. Filed June 22, 1905. Serial No. 266,518.

Claim.—1. A vehicle-wheel comprising a hub, a series of radiating spokes symmetrically disposed thereon, a rim and a series of inwardly-extending spokes attached thereto, each pair of spokes being connected at their inner ends forming a spring seat, a spiral spring within each seat, removable means for holding said spring in place and a connection between said springs and said hub-nuts, substantially as described.

823,608. Carburetter for Explosive-Engines. Jean B. D. M. Malezieux, Paris, France. Filed July 18, 1904. Serial No. 217,069.

Claim.—1. In a carburetter, the combination of a reservoir, for containing a carburetting liquid, an air-receiving chamber having an air-inlet, a valve normally closing said inlet, a carbureted air-delivery chamber communicating with said air-chamber, a spraying device delivering said liquid to the air-chamber, a valve simultaneously controlling said spray device and a passage between said two chambers and a valve for independently controlling said passage.

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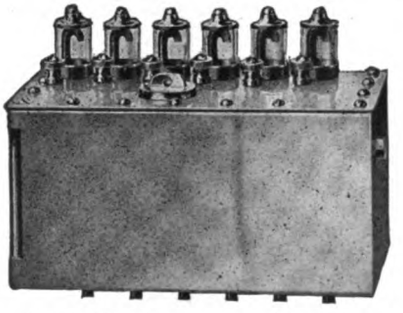


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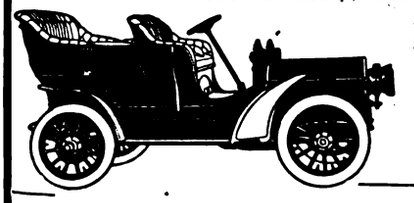
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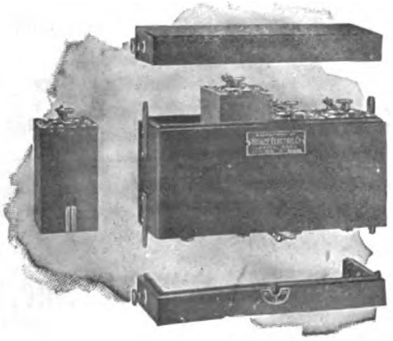
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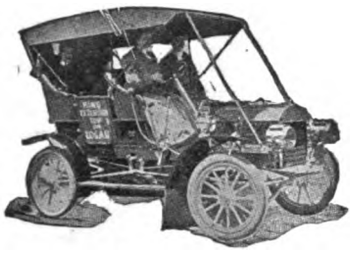
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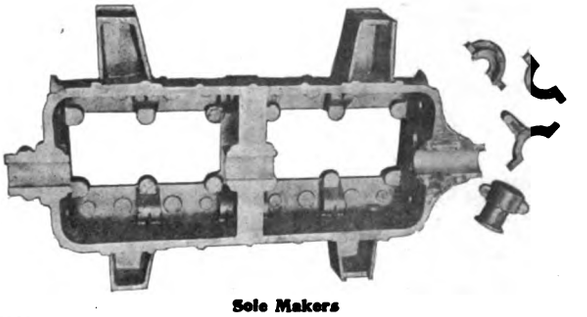


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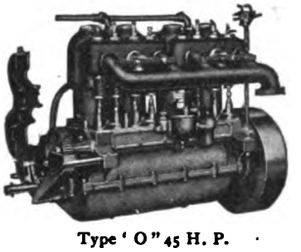
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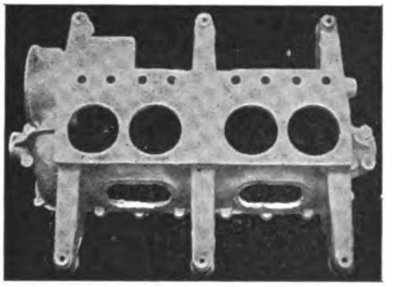
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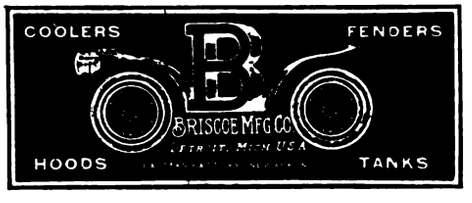
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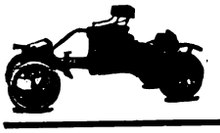
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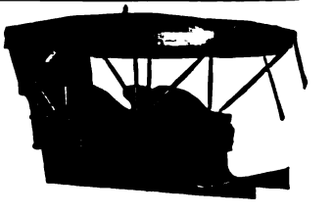
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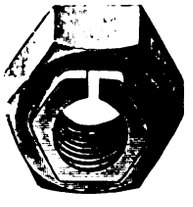
NEW YORK SCHOOL OF
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Under personal direction of
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Departments include machine tool and forge shops, assembling and test shops with every type of motor; also laboratories completely and specially equipped to teach all component parts of automobiles Day and evening class.
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THE LAMBERT Famous Friction-Drive Car.

Models and Styles to Suit the Purchaser.

PLEASURE CARS, RUNABOUTS and TOURING CARS, and Lambert Patented Friction Drive COMMERCIAL TRUCKS. Prices $900 to $3000. Write for particulars.
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Columbia Lock Nuts will not shake off American made cars, neither will they shake off cars of foreign make. We are prepared to furnish Columbia Lock Nuts with Metric thread for French cars and Whitworth threads for English cars. Nuts that will not shake loose are an absolute necessity. More trouble and loss of life result from nuts working loose than from any other known cause.

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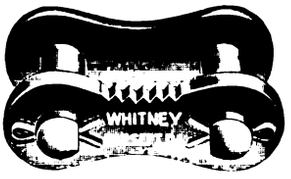
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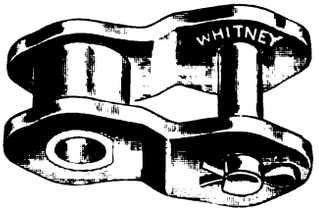
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17-2 VANDEWATER STREET NEW YORK

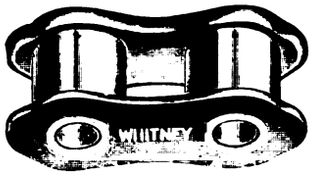
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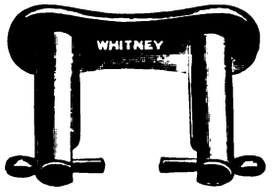
Connecting Link



OFFSET LINK



Assembled Center Block

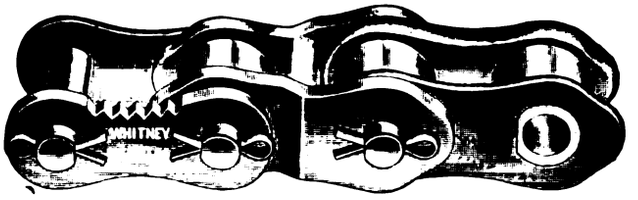


Side Link with Rivets Assembled



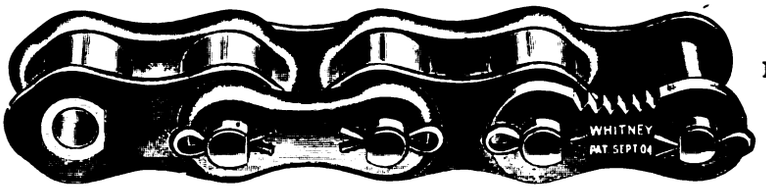
Side Link Plain

"Whitney" Offset Links for use when it is required to shorten or lengthen a chain only one Link.

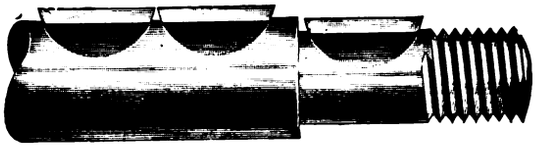


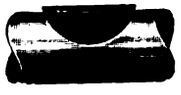
Against claims made by Competitors, we submit the following list of Motor Car Manufacturers using "WHITNEY" ROLLER CHAINS and STANDARDS. Is it not time for everyone to admit that "WHITNEY" STANDARDS for ROLLER CHAIN dimensions are now the American Standards?

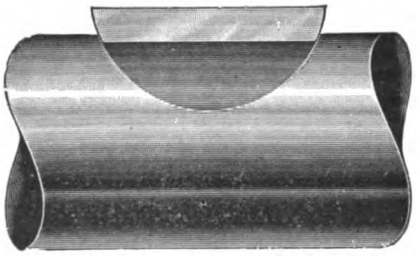
"ADAMS-FARWELL" "ADAMS VEHICLE CO." "AMERICAN MOTOR TRUCK" "AUTO-CAR EQUIPMENT" "BAKER" "BERKSHIRE" "BIDDLE-MURRAY" "CADILLAC" "COLUMBIA" "CHAMPION (McCrea)" "CROWN" "CRAWFORD" "COLUMBUS BUGGY CO." "ELWELL-PARKER" "FORD" "FRANKLIN" "GAETH" "GALE" "GROUT" "HEWITT" "THE HOLMES" "IROQUOIS IRON WORKS" "KNOX" "LAMBERT" "LEAR" "MATHESON" "MACK BROTHERS" "MITCHELL" "MOLINE" "NEW YORK MOTOR TRUCK" "OLDS" "PACKARD" "RAMBLER" "RAPID" "REO" "SIMPLICITY" "STEARNS" "THOMAS" "TOURIST" "WAYNE" "WESTERN MOTOR TRUCK" etc.



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Troubleless trips cannot be made on troublesome tires.

Many a cross-country trip has been marred by inexcusable tire-behavior.

If tires are to play their part in the luxury of automobiling, they must be fully prepared to do battle with roads that are decidedly tough.

No one can foresee or forestall accidents, but wholly unnecessary disorders have been foreseen and forestalled (and we can prove it) in the making of

MORGAN & WRIGHT TIRES.

CLINCHER——DUNLOP——BAILEY "WON'T SLIP" TREAD



Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

MORGAN & WRIGHT, CHICAGO

New York Philadelphia Dayton Minneapolis St. Louis Denver San Francisco
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ELMORE STANDS FOR SIMPLICITY

If you will look into the ELMORE system you will quickly see why it is the criterion by which **simplicity** and **efficiency** in automobile construction must be judged.

The valveless Two-cycle motor has come to stay. The success of the ELMORE proves it. Every ELMORE cylinder produces—without valves or other small auxiliary parts—double the number of energized piston strokes that are possible in the ordinary four-cycle type.

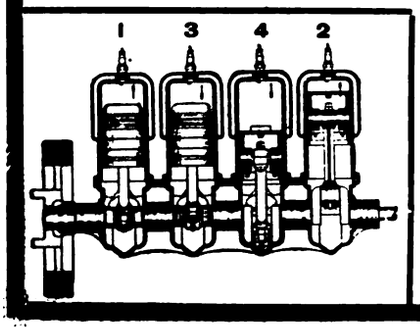
There is no other car, therefore, that can give you as many impulses per shaft revolution as the four cylinder, Two-cycle ELMORE.

It would require eight four-cycle cylinders with sixteen valves and more than one hundred and fifty small parts to accomplish this result.

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The valveless Two-cycle ELMORE dodges the adjustment problem, and practically every sort of engine trouble as well. So long as there is gasoline and a hot spark, you needn't worry.

Don't you want the ELMORE booklet, telling all about this famous car?



THEY START FROM THE SEAT.

Model 15, Four Cylinder, Two-cycle Elmore, $2,500.

THE ELMORE MANUFACTURING COMPANY,

1104 Amanda Street, CLYDE, OHIO.

Members Association of Licensed Automobile Manufacturers.

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OF

CLINCHER TIRES

We have commenced and are vigorously prosecuting suits for infringement of our patents against the Pennsylvania Rubber Company and the Michelin Tire American Agency, Inc., on account of the sale of Clincher tires.

The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J Patents:

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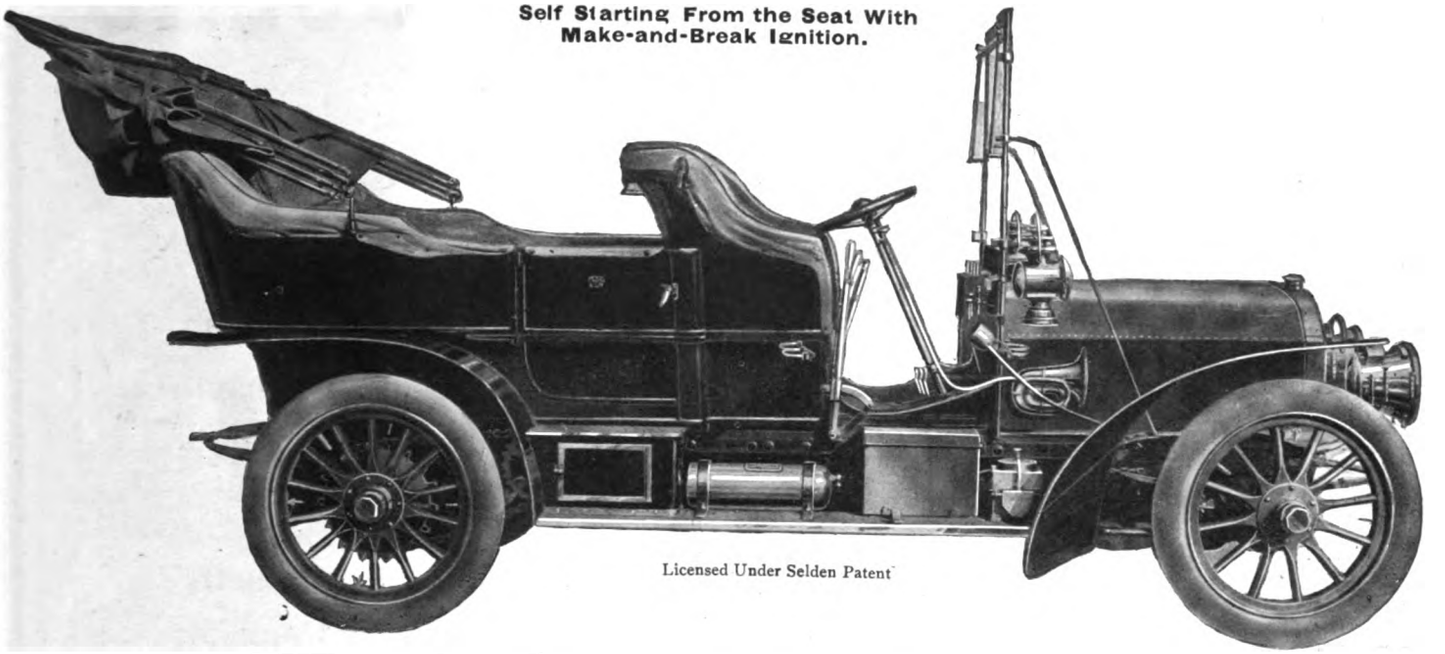
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CHROME-NICKEL STEEL used throughout in construction of shafts, transmission and gears.

"Matheson"

HESS-BRIGHT IMPORTED — ball-bearings secure perfect transmission of power from engine to wheel.

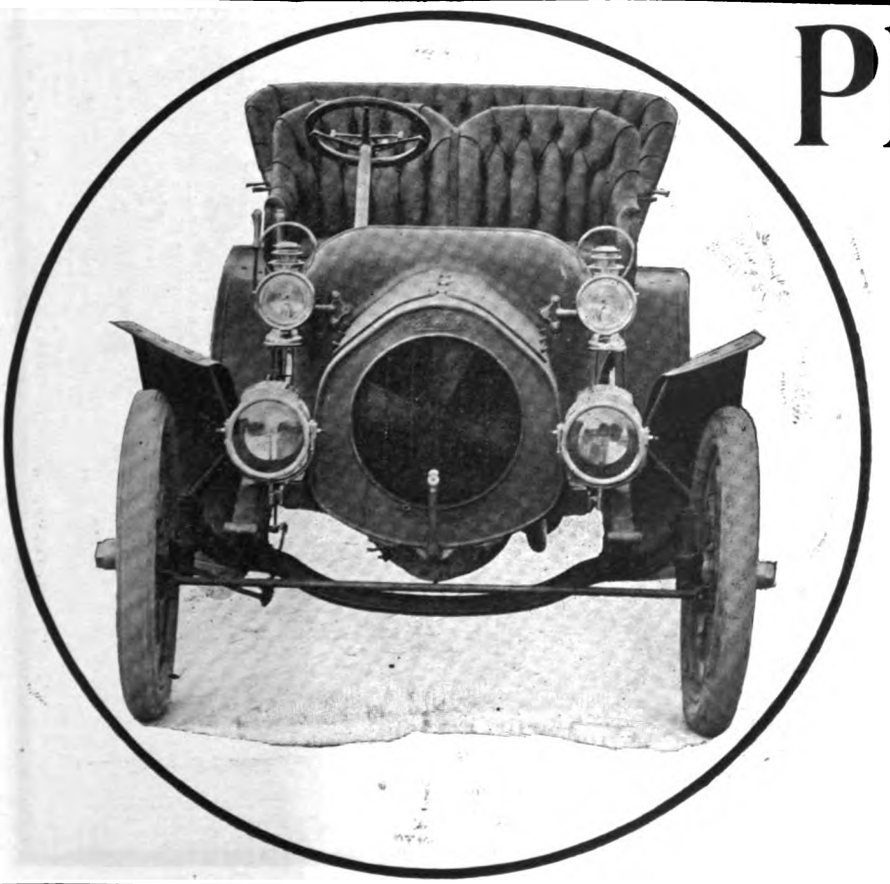
Self Starting From the Seat With Make-and-Break Ignition.



Licensed Under Selden Patent

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PREMIER

DBP.—First in rank or position.

The Premier car here shown worthily bears its name. It's as good as most cars twice its price and twice as good as cars at anywhere near its own price.

Here are a few specifications:

Up-to-date design, I-beam section axle, selective type sliding gear transmission on Annular Ball Bearings, well designed bevel drive rear system, ideal and reliable oiling system, liberal sized tires, pleasing body design, luxurious upholstering, powerful and dependable air-cooled motor which performs well in hot or cold weather.

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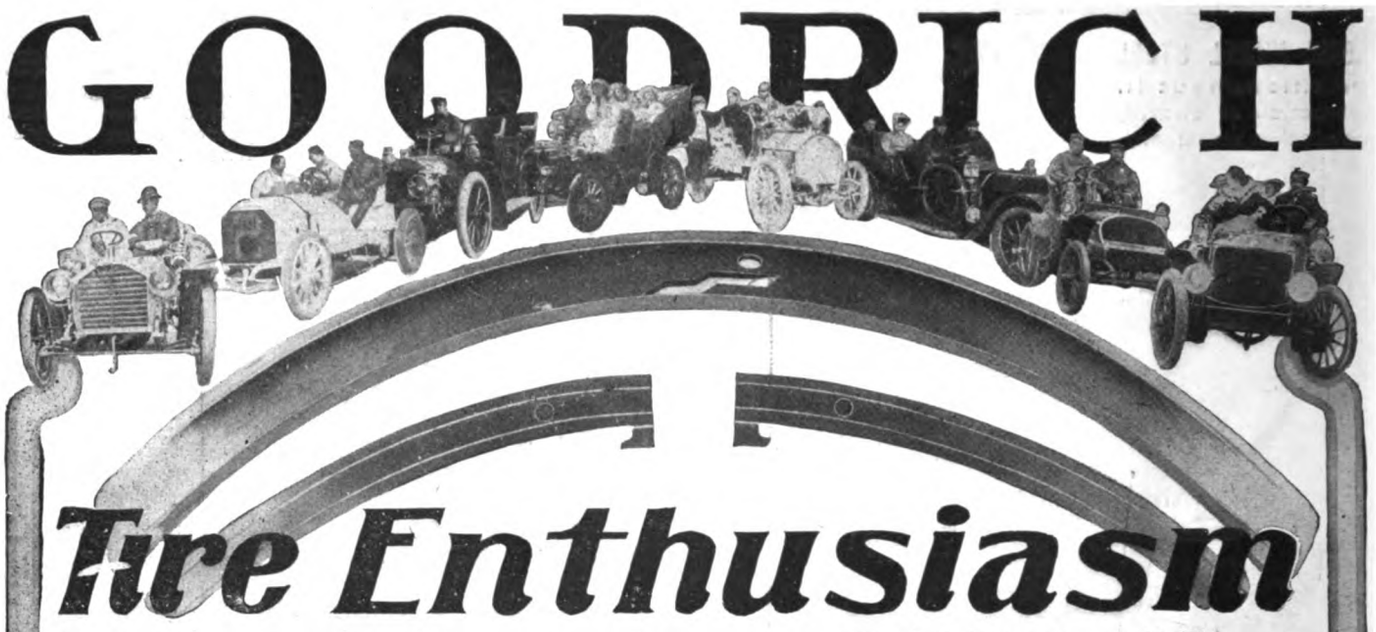
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It's abroad in the land and catching when you come in contact with Goodrich Quick Detachable Tire users.

Enthusiasm is a habit with us and has helped to find ways for doing things bigger and better than ever before.

A power for good, and mightily in evidence when you use Goodrich Tires.

THE B. F. GOODRICH COMPANY, - - - - Akron, Ohio.

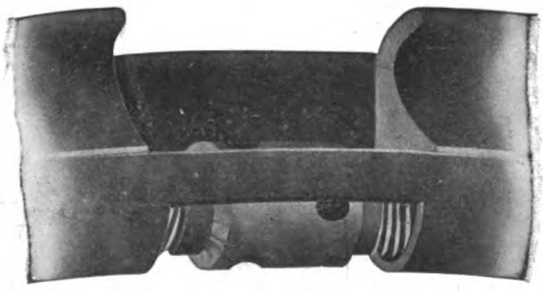
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Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

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THE CAR OF CONTENTMENT.

You can't argue a Maxwell owner out of his conviction that the Maxwell is "the car for him." He has a proven fact and a practical demonstration for every theory or fad that you may present. ***"Performance,"*** he says, "is a whole lot better than ***promise.***" He is contented because he can't see how a car ***could*** give more satisfaction than the Maxwell.



20 H. P. Touring Car, $1,450

Multiple Disc Clutch. Three-point suspension of Motor and Transmission (Unit). Metal Bodies. No Noise. No Vibration.

There is a book called "Facts and Testimony" that gives the "owner's side" of the automobile question. You get it when you send for our catalogue.

Write Department 2.

Maxwell-Briscoe Motor Co.

Members American Motor Car Mfrs. Ass'n.

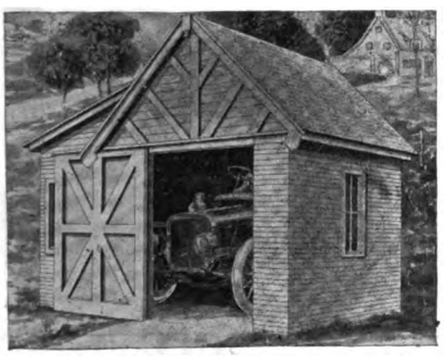
FACTORIES: **Chicago, Ill. Pawtucket, R. I.**
Main Plant: TARRYTOWN, N. Y.



10 H. P. Tourabout, $780

BRANCHES:

Maxwell-Briscoe, Inc., New York, N. Y.	Maxwell-Briscoe-McLeod Co., Detroit, Mich.
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It's So Very Neat

The Premier Portable Garages

are quite unique. They are so simple—yet artistic, practical—yet durable. They save expense of garage rent and are one-third the cost of a permanent structure. Being built in sections they are very easy to move and re-erect whenever you like.

GET BOOKLET No. M37.

A handy man can erect it in TWO hours.

CHAS. H. MANLEY,
Premier Mfg. Works, ST. JOHNS, MICH.



The Auto-Meter tells Speed and Distance. It's acurate when you get it and *stays accurate* for a lifetime The only way to put it out of business is to smash it.

You ought to have an **Auto-Meter** on your car. It means Certainty—Exact Knowledge—Ease of Mind. It's a sure prevention of trouble with the "Powers that be."

The Auto-Meter

The Large, Plain Figures of the Auto-Meter are easily read 6 feet away. The figures are steady, for *Speed Alone* changes the dial.

is dependable under all conditions, whether you go fast or slow—up hill or down—whether your car is listed or on a level.

It is the only speed indicator which correctly registers LOW SPEEDS—magnetism makes this possible.

Other indicators depending on centrifugal force are unreliable, *even when new*, at speeds under 10 miles an hour, and unreliable at *any speed* after the little friction cams and pins get worn and the springs become weakened.

Only 1 1000 of an inch wear means 5 miles or more an hour in the reading. Magnetism has no springs, cams or pins to ir, so **The Auto-Meter** is as reliable ten years from now as it is today.

There are other good points about **The Auto-Meter**—interesting, convincing, practical. You ought to know them.

Ask your Dealer or Garage man to explain all these good points of **The Auto-Meter,** or write us and we'll tell you.

WARNER INSTRUMENT CO., 310 Roosevelt St, Beloit, Wis.

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National

WORLD'S RECORDS

For 1,000 miles and 1,094 3/16 miles in 24 hours
Made Nov. 17, 1905 STILL STAND UNEQUALLED



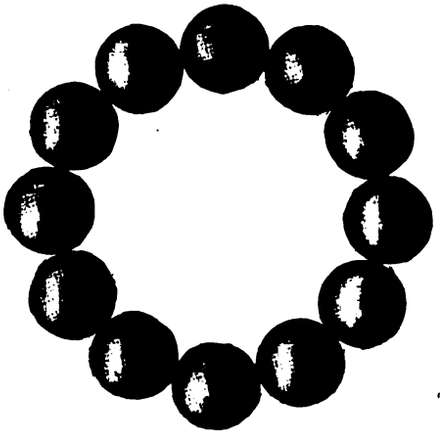
Proving National Superiority

4 Cyl., 35-40 H.P. - $3,000 6 Cyl., 50-60 H.P. $4,000

NATIONAL MOTOR VEHICLE CO.

MEMBER AMERICAN MOTOR CAR MANUFACTURERS ASSOCIATION, CHICAGO.

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ANNOUNCEMENT

"Standard Alloy Steel Balls"

made of ALLOY STEEL, now ready for delivery.

Double Crushing Strength Ordinary Balls

¼ inch Crucible steel balls' crushing strength, 50,000 to 56,000 lbs.
¼-inch "STANDARD ALLOY" steel balls, 95,00 to 100,000 lbs.
Guaranteed true to .0001 inch in diameter and sphericity.
Prices quoted on request.

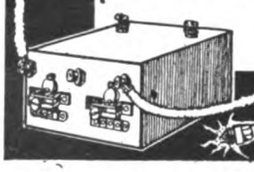
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THE STANDARD OF THE WORLD

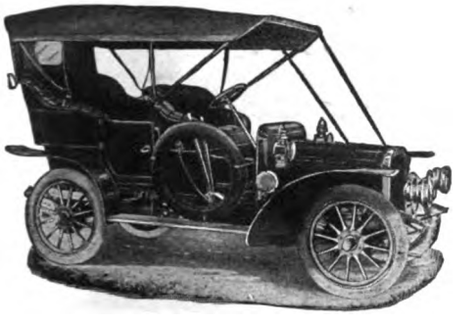
Avoid any chance of trouble by seeing that your coil bears the name SPLITDORF.

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Aerocar



Model A, 1906—24 H.P., Four Cylinder, Air Cooled—Delivered promptly complete in every detail of equipment as shown in illustration, including Standard Extension Black Top—Two Gas Headlights—Full Oil Lamp Equipment—Pres-to-Lite Tank—Hartford Shock Absorbers—Gabriel Horn—Speedometer—Extra Tire and Inner Tube in Waterproof Case with attaching Irons—Robe-rail and Foot-rest in Tonneau—Tool Box with full equipment on Running Board.

For $2,800 f. o. b. Detroit.
Price with Lamp Equipment, $2,500.

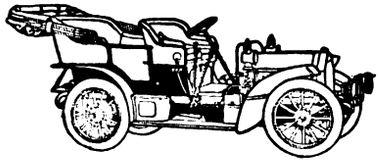
The motor car of **greatest flexibility**—awarded First Prize for flexibility at the Open Air Show and Carnival at the Empire City Track, New York, May 24, 1906, and there were sixty contestants.

The Aerocar Company

DETROIT, MICH., U. S. A.

Members of American Motor Car Manufacturers Association





Our catalogue omits generalities. Dwells on the specific points in which the automobilist is interested.

Locomobile

COMPANY OF AMERICA
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AN INTERNATIONAL UNION

has given to the world that triumph of efficiency, speed and comfort.



THE 50 H. P.

THOMAS FLYER

($3,500.)

Cooperation of French engineering skill of the first grade, with American technique, inventiveness and adaptability, has produced this car in which every essential factor of high quality is present.

Study the Thomas booklet and analyze for yourself the foundation upon which Thomas superiority has been built.

Ask for full Thomas literature to-day.

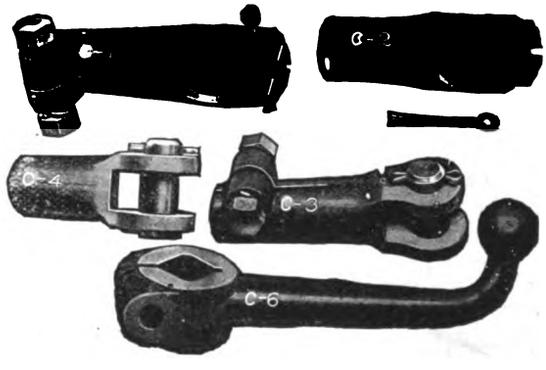
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The B & S Steering Connections.

B TRADE MARK B TRADE MARK



DROP FORGED OF STEEL AND MACHINED READY FOR USE.

EASILY ADJUSTED.

In two sizes, for light and heavy vehicles.

Described in our illustrated catalogue. Ask for it.

THE BILLINGS & SPENCER CO., - Hartford, Conn

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OLDSMOBILE

PALACE TOURING CAR

Which on May 19th went over the hilly road between New York and Poughkeepsie with the *gear lever sealed* into the *High Speed Notch*

The test was held under the auspices of the New York Motor Club

(Tribune, May 18.)

AUTO TEST RUN TO POUGHKEEPSIE.

In order to demonstrate the qualities of the model B four-cylinder touring palace car, the Oldsmobile Company has arranged a test to Poughkeepsie to-morrow, under the auspices of the New York Motor Club. Joseph Tracy, the well known driver, who finished third in the Vanderbilt Cup race last year, and Ernest Kooler, who is to drive the big six cylinder Oldsmobile in the Vanderbilt Cup race this year, will take turns at the wheel.

The start will be made at 13 o'clock. The high speed clutch will be thrown in and sealed by A. B. Tucker, the secretary of the club, who will act as observer. The stop at Poughkeepsie will be in front of the Nelson House, and as there are several steep grades on the road the test should be an interesting one.

(Tribune, Sunday, May 20.)

AUTO RUN TO POUGHKEEPSIE.

Poughkeepsie, N. Y., May 19.—A successful run was made, with the high speed clutch thrown in all the way, by the model B four-cylinder Oldsmobile touring car from New York to this city to-day. The start was made shortly after noon and was under the auspices of the New York Motor Club.

The car arrived in splendid shape after its long journey. The high speed clutch, which was sealed by officials of the New York Motor Club will remain so until this morning. There were two observers in the machine, which was cleverly handled by Ernest Kooler, who is to drive the big six-cylinder Oldsmobile in the Vanderbilt Cup race this year.

(Times, Saturday, May 19.)

AUTOMOBILE NOTES OF INTEREST.

An interesting trip to demonstrate the hill climbing qualities of the four-cylinder Oldsmobile touring car to-day will be made from the Broadway office of the Olds Motor Works in this city. The high speed gear was thrown in and sealed, and it will not be opened until the machine has been started four passengers, Kooler, the driver, who has been selected to drive the Oldsmobile Vanderbilt Cup racer. With him will be E. J. Bahin, and the two members of the New York Motor Club, Paul L. Boutell and F. Ferguson.

(Times, Monday, May 21.)

The announcement has just been made by the Olds Motor Works that the Oldsmobile Vanderbilt cup racer will be ready for its first test to-day. The six-cylinder car is of the latest improved type and is the result of the development of many months of work. Among the advantages that the engineers believe they will attain by the six cylinder motor during the race will be that Joseph Tracy, who is to drive the racing car, and some of the Oldsmobile officials went over the proposed Long Island course to study the route.

(Sun, May 19.)

Joe Tracy, who finished third in the 1906 Vanderbilt cup race yesterday denied the report that he was to drive the Oldsmobile candidate for the American team in the coming contest for the Vanderbilt cup. He said the only connection he would have with the Oldsmobile racer would be that of adviser to George H. Dunham, who is supervising the construction of the car. Tracy has made one visit to the factory to confer with Mr Dunham, and expects to make another visit there within the next week or two. He said emphatically that so far as he knew the plan to have Ernest Kooler drive the racer had not been changed and he did not think that it would be.

(Sun, Sunday, May 20.)

AUTO TRIP TO POUGHKEEPSIE ON HIGH-SPEED GEAR.

Under the official observance of two New York Motor Club members, Geo. John T Cutting's 26-28 horse-power Oldsmobile touring car made an unusual run from New York to Poughkeepsie yesterday. The start was made from the corner of Broadway and Fifty-first street and the journey was made entirely on the high speed gear, which was thrown in and sealed by Secretary A. B Tucker of the Motor Club before the engine was started. Paul L. Boutsel, chairman of the technical committee, and E. L. Ferguson represented the New York Motor Club as observers. The car was driven by Ernest Kooler, who will pilot the Oldsmobile racer in the American eliminating trials for this year's Vanderbilt race, and Joe Tracy, the well known racing driver who finished third in the 1906 Vanderbilt cup race.

(Post, Saturday, May 18.)

The interest in the novel test to be run on Saturday by the Olds Motor Works of Lansing, Mich., was given impetus at the joint meeting of the contest and technical committees of the New York Motor Club last night at their rooms at the Cumberland. The meeting was called to devise the ways and means for the run to Poughkeepsie to be made by the six-cylinder Oldsmobile touring car, which the Olds claim can make the run to the Nelson House with the high speed gear thrown in and sealed. According to the statistics of the club, a test of this kind has never been attempted here or abroad.

The rules as decided by the club are as follows:

The high-speed gear is to be thrown in and sealed before the motor is started. Four passengers are to be carried during the whole trip. The drivers are allowed the privilege of backing down hill under the force of gravity in case the first attempt fails.

Joseph Tracy, of Vanderbilt cup fame, and Ernest Kooler, the man who will pilot the Oldsmobile cup racer this year are to alternate as drivers. Two members of the club are to accompany the car as observers, and will turn in a complete record of the performance of the car at the finish.

(Post, May 21.)

AUTOMOBILE NOTES.

Undoubtedly nothing is harder to prove than the hill-climbing abilities of a car. The Oldsmobile Company of No. 1053 Broadway have, however, worked out a way, and yesterday demonstrated its practical ability as well as the hill-climbing ability of their Palace touring car by making a sealed high-gear run from New York to Poughkeepsie on Saturday.

In order that all observation should be absolute, accurate and officially recorded, a proposal was submitted to the members of the contest and technical committees of the New York Motor Club, asking for their official sanction and co-operation. The request was granted, and Mr. Paul L. Boutsel, chairman of the technical committee, and Mr. E. L. Ferguson, another member of the board, were delegated to act as observers.

The car used for the test was the Palace touring car, model "B," which is equipped with a 26-28 horse-power motor of the four-cylinder water-cooled type, sliding gear transmission with selective control.

Under the conditions of the test the control lever was thrown into the high speed position and sealed by Mr. Ferguson in the presence of several members of the club and members of the press. It was necessary to start and operate the machine entirely on high gear as the drivers were not allowed to change speeds even in reversing. Due to the fact, however, that the car has a range of from three miles an hour to fifty-two miles an hour it was possible to make the whole trip without violating any of the speed ordinances and at the same time have sufficient power in reserve to climb all the hills en route.

The car left the Oldsmobile agency, No. 1053 Broadway, at 12:35, with Ernest Kooler and Joseph Tracy as pilots. The trip to Yonkers, where Tracy turned the wheel over to Kooler, was made at the average of fourteen miles an hour. Dobbs Ferry, Tarrytown and Ossining were passed with the motor running like clock work. The long and sandy hill south of Croton afforded the motor its first real test. Speeding up on the flat across the bridge and viaduct Kooler had the car going at forty-five miles when he struck the sandy hill. When near the top of the hill, which is 32 degrees, the driver of a truck being confused by the horn and yelling, abandoned his team, leaving them in the middle of the road. For a while things looked dubious, and it was only by the wonderful skill of the driver that the car was saved from being overturned, the car passing the team with two wheels in the ditch. Owing to the crowded condition of the main thoroughfare and the extremely deep "thank you ma'am" at the bottom of Welcher Hill, north of Croton, no flying start could be made. This hill was probably the hardest test on the car and motor. The surface of the road was very poor, being covered with three or four inches of new dirt, which was being used in the annual spring roadmaking. At Peekskill gasoline, water and oil were taken aboard. Another hill, 34 degrees, just north of Peekskill, was taken with a flying start. The top of the hill was made with the Oldsmobile speedometer registering between eighteen and twenty miles an hour. The run through Fishkill, Wappingers Falls, to the Nelson House, in Poughkeepsie, was uneventful. Considerable interest was displayed in Poughkeepsie. The seal on the high speed clutch which was put on by the secretary of the Motor Club was allowed to remain intact until Sunday morning, when it was broken by Mr. H. N. Bain, proprietor of the Nelson House, under the direction of the Motor Club officials, at 9:30 A. M.

(Mail, May 18.)

In order to make good his claims that the Oldsmobile four-cylinder balance touring is able to negotiate any hill in the metropolitan district on high gear, Gen. John T. Cutting has arranged for an official test which shall be convincing. Under the auspices of the New York Motor Club and the immediate supervision of Paul L. Boutsel, chairman of the technical committee of the club, a palace touring car will leave the New York agency, 1053 Broadway, to-morrow at 12 o'clock for Poughkeepsie. The high-speed clutch will be thrown in and sealed by A. B. Tucker, secretary of the club. In the presence of Mr. Boutsel, who will accompany the car and act in the capacity of observer in the interests of the club. The most direct route to the Nelson House will be followed. Joseph Tracy, the well known driver who took third place in the Vanderbilt race last year, and Ernest Kooler, who is to drive the big six-cylinder Oldsmobile in the cup race this year, will pilot the car. In view of the fact that there are several well known steep grades to be negotiated on the trip, the event is already exciting considerable comment among the trade and it is rumored that the Oldsmobile will be challenged by other makers.

(Mail, May 21.)

HILL-CLIMBING TEST OF OLDSMOBILE MOTOR CAR.

By John C. Wetmore.

The vaunted ability of the Oldsmobile four-cylinder palace touring car to climb on the high gear the average hills to be found within a big radius of this city was demonstrated on Saturday afternoon by a run of seventy-five miles from this city to Poughkeepsie in a manner that would seem to leave Gen. Cutting's claim in this respect for the car without dispute. With Ernest Kooler, who is to drive the Olds Motor Works Vanderbilt Cup candidate, and Joe Tracy, of expert and racing fame, dividing the work at the wheel, and two members of the New York Motor Club acting as official observers, and with the clutch sealed on high gear, the run over the constantly occurring and often difficult hills en route was made without the car once being stalled, and without a hitch of the machinery, in 5 hours and 10 minutes, net running time.

Paul L. Boutell, chairman of the technical committee, and E. L. Ferguson, another member of the board, acted as observers. The car used was the model "B," which is equipped with a 26-28 horse power motor of the four-cylinder, water-cooled type and sliding-gear transmission with selective control. Owing to the fact that the car has a range of from three miles an hour to fifty-two miles an hour it was possible to make the whole trip without violating any of the speed ordinances, and at the same time have sufficient power in reserve to climb all the hills.

The car left the Oldsmobile agency, No. 1053 Broadway, at 12:35, with Ernest Kooler and Joseph Tracy as pilots. The trip to Yonkers, where Tracy turned the wheel over to Kooler, was made at the average of fourteen miles an hour. Dobbs Ferry, Tarrytown and Ossining were passed with the motor running like clock work. The long and sandy hill south of Croton afforded the motor its first real test. Speeding up on the flat across the bridge and viaduct Kooler had the car going at forty-five miles when he struck the sandy hill. When near the top of the hill, which is 32 degrees, the driver of a truck being confused by the horn and yelling, abandoned his team, leaving them in the middle of the road. For a while things looked dubious, and it was only by the wonderful skill of the driver that the car was saved from being overturned, the car passing the team with two wheels in the ditch. Owing to the crowded condition of the main thoroughfare and the extremely deep "thank you ma'am" at the bottom of Welcher Hill, north of Croton, no flying start could be made. This hill was probably the hardest test on the car and motor. The surface of the road was very poor, being covered with three or four inches of new dirt, which was being used in the annual spring roadmaking. At Peekskill gasoline, water and oil were taken aboard. Another hill, 34 degrees, just north of Peekskill, was taken with a flying start. The top of the hill was made with the Oldsmobile speedometer registering between eighteen and twenty miles an hour. The run through Fishkill, Wappingers Falls to the Nelson House, in Poughkeepsie, was uneventful. Considerable interest was displayed in Poughkeepsie. The seal on the high speed clutch which was put on by the secretary of the Motor Club was allowed to remain intact until Sunday morning, when it was broken by Mr. H. N. Bain, proprietor of the Nelson House, under the direction of the Motor Club officials.

(Courier, Poughkeepsie.)

ARRIVAL OF THE OLDSMOBILE.

Yesterday afternoon quite a remarkable run from New York at 12:35 p. m., a 1906 model Oldsmobile touring car was completed in this city. A 1906 model Oldsmobile touring car was made the run here in about five hours. It is the first test of the kind ever held and demonstrates the possibility of making difficult grades as well as running slowly through towns on the high speed. The run was made under the auspices of the New York Motor Club, the officials of that organization were carried in the car as judges.

Another purpose of the run was the demonstration of the new model to John Van Benschoten, who has always had the Oldsmobile agency here. The machine is finished in a brilliant red and presents a handsome appearance. It was driven to Yonkers by Joseph Tracy and the rest of the way by Ernest Kooler.

(Press, Monday, May 21.)

FINE RUN OF OLDSMOBILE CAR.

Auto Company Makes Successful Test on Trip to Poughkeepsie.

Nothing is harder to prove than the hill climbing abilities of a car. The Oldsmobile Company, however, has worked out a way and demonstrated the practical ability as well as the hill climbing ability of its palace touring car, by making a sealed high gear run from New York to Poughkeepsie on Saturday. The car used for the test was the palace touring car, model "B," which is equipped with a 26-28 horsepower motor of the four-cylinder water-cooled type, sliding gear transmission with selective control.

The car left the Oldsmobile agency, No. 1053 Broadway, at 12:35 p. m., with Ernest Kooler and Joseph Tracy as pilots. The trip to Yonkers, where Tracy turned the wheel over to Kooler, was made at an average of fourteen miles an hour. Dobbs Ferry, Tarrytown and Ossining were passed with the motor running like clock work. The long and sandy hill south of Croton afforded the motor its first real test. Speeding up on the flat across the bridge and viaduct Kooler had the car going at forty-five miles when he struck the sandy hill. When near the top the driver of a truck, being confused by the horn, abandoned his team, leaving them in the middle of the road. For a while things looked dubious and it was only by the wonderful skill of the driver that the car was saved from being overturned. It passed the team with two wheels in the ditch.

Owing to the crowded condition of the main thoroughfare and the extremely deep "thank you marms" at the bottom of Welcher hill north of Croton, no flying start could be made. This hill was probably the hardest test on the car and motor. The road was very poor, being covered with three or four inches of new dirt. At Peekskill gasoline, water and oil were taken aboard. Annsville hill, just north of Peekskill was taken with a flying start. The top of the hill was made with the speedometer registering between eighteen and twenty miles an hour.

The run through Fishkill and Wappingers Falls to the Nelson House in Poughkeepsie was uneventful. Considerable interest was displayed in Poughkeepsie. The seal on the high speed clutch which was put on by the secretary of the Motor Club was allowed to remain intact until Sunday morning, when it was broken by H. N. Bain, proprietor of the Nelson House, under the direction of the motor club officials.

(Herald, May 19.)

AUTOMOBILE NEWS NOTES.

Joseph Tracy will attempt to drive a touring palace automobile from New York to Poughkeepsie to-day, with the high speed gear thrown in and sealed before the start. The car is an Oldsmobile, and Tracy is said to be the first man to attempt the journey.

(New York Herald, Sunday, May 20.)

MADE RUN ON HIGH GEAR.

One of the most remarkable automobile tests ever held in this city was conducted yesterday under the auspices of the New York Motor Club when a 26-28 horse power Oldsmobile touring car from New York to Poughkeepsie, a run of seventy-five miles, was made on the high speed gear thrown in and sealed before the motor was started.

The test was conducted personally by Joseph Tracy and Ernest Kooler and carried also Paul L. Boutsel and E. L. Ferguson, representing the New York Motor Club. These two telegraphed back to the club last night that the run had been made without incident.

The route to Poughkeepsie, via Yonkers, Tarrytown, Peekskill and Fishkill affords fair road conditions, but is extremely hilly. The most difficult of the ascents is the famous Nelson hill, near Peekskill, with a grade running up to seventeen per cent. The car successfully ascent all the climbs and made a flying start over the top of the rival at Poughkeepsie. It will remain sealed for examination to-day. The run was made in about seven hours.

(American, Saturday, May 18.)

The Olds Motor Works in order to demonstrate the hill-climbing qualities of their model B four-cylinder touring car have originated a novel idea of testing the car's powers. On Saturday at 12 o'clock the Olds Motor Club will start its model "B" touring car from the factory on Broadway on Saturday at 12 o'clock for Poughkeepsie. The high speed gear will be thrown in and sealed by A. B. Tucker, secretary of the club, with a grade run in the presence of the club. Joseph Tracy, the well known driver who took third place in the Vanderbilt race last year and Ernest Kooler, who is to drive the big six-cylinder Oldsmobile in the cup race this year, will pilot the car.

(American, May 21.)

The Oldsmobile Company demonstrated the hill-climbing ability of its Palace touring car on Saturday when a run from New York to Poughkeepsie was completed on the high speed gear. The run was made under the auspices of the New York Motor Club, and the car, a 26-28 horse power Oldsmobile, driven by Ernest Kooler, made the entire run, a distance of 75 miles, and contesting many hills en route, without a single stop or any trouble. Paul L. Boutsel and E. L. Ferguson of the club's technical committee acted as observers.

The car left the Oldsmobile agency, No. 1053 Broadway, at noon with Ernest Kooler and Joseph Tracy as pilots. The trip to Yonkers, where Tracy turned the wheel over to Kooler, was made at the average of 14 miles an hour. Dobbs Ferry, Tarrytown and Ossining were passed with the motor running like clock work. The long and sandy hill south of Croton afforded the motor its first real test. Speeding up on the flat across the bridge and viaduct, Kooler had the car going at forty-five miles when he struck the sandy hill. When near the top of the hill the driver of a truck, being confused by the horn and yelling, abandoned his team, leaving them in the middle of the road. For a while things looked dubious and it was only by the wonderful skill of the driver that the car was saved from being overturned. It passed the team with two wheels in the ditch.

Owing to the crowded condition of the main thoroughfare and the extremely deep "thank you marms" at the bottom of Welcher hill north of Croton, no flying start could be made. This hill was probably the hardest test on the car and motor. The surface of the road was very poor, being covered with three or four inches of new dirt, which was being used in the annual spring road making. At Peekskill gasoline, water and oil were taken aboard. Annsville hill, just north of Peekskill, was taken with a flying start. The top of the hill was made with the McClellan speedometer registering between 18 and 20 miles an hour. The run through Fishkill and Wappingers Falls to the Nelson House in Poughkeepsie was uneventful. Considerable interest was displayed in Poughkeepsie. The seal on the high speed clutch, which was put on by the secretary of the Motor Club, was allowed to remain intact until Sunday morning, when it was broken by H. N. Bain, proprietor of the Nelson House, under the direction of the Motor Club officials at 9:30 A. M.

(Globe, May 18.)

HILL-CLIMBING TEST

Four-Cylinder Touring Oldsmobile Will Run at High Speed to Poughkeepsie.

BIG L. I. PARADE TO-MORROW.

At Least 200 Cars Are Expected to Form in Line in Prospect Park Plaza.

By ALFRED REEVES.

In order to demonstrate the hill climbing qualities of the four-cylinder touring car, the Olds Motor Works has originated a novel idea for testing its claim that the machine can climb any hill within seventy-five miles of New York on the high speed. Under the auspices of the New York Motor Club and under the immediate supervision of Paul L. Boutsel, chairman of the technical committee of the club, an Oldsmobile will start from 1042 Broadway at noon to-morrow for a journey to Poughkeepsie. The high speed lever will be thrown in and sealed by A. B. Tucker, secretary of the club, in the presence of Mr. Boutsel, who will accompany the car as observer. Joseph Tracy and Ernest Kooler, who is to drive the six-cylinder Oldsmobile in the Vanderbilt Cup race this year, will be on the machine.

Those who have been over the road from here to Poughkeepsie know of a number of steep grades that must be negotiated during the progress of the trip, and the proposed test is sure to attract a lot of attention, not only among automobilists, but among tradesmen, some of whom doubt the ability of any automobile to make the entire trip on the high speed.

Final instructions have been issued for the automobile parade of the Long Island Automobile Club to-morrow

(Globe, May 21.)

One of the most remarkable trips ever made by automobile, and one that automobilists are still discussing, was made on Saturday when a 26-28-horse-power Oldsmobile touring car, with sliding gear transmission, travelled from New York to Poughkeepsie entirely on the high gear. The high gear lever was sealed by members of the technical committee of the New York Motor Club and F. L. Boutsel and E. L. Ferguson, members of the club, accompanied the car. The drivers were Ernest Kooler and Joseph Tracy. Not the slightest difficulty was experienced in making all the hills, a feat that many automobilists considered impossible

(The Commercial, May 18.)

AUTOMOBILE NEWS.

By John R. Castle.

Interest in the hill-climbing contests which is apparent in the minds of motor enthusiasts has not abated. Not only the but the manufacturers seem to realize that the purchaser is not the man "shown" that the machine is capable of making good. The Olds Motor Works of Lansing, Mich., in order to demonstrate the hill-climbing qualities of its model "B" four-cylinder palace touring car, has arranged a novel idea of testing the assertion that the car can climb any hill within 75 miles of New York on high gear.

Under the auspices of the New York Motor Club, and under the immediate supervision of Paul L. Boutsel, chairman of the technical committee of the club, a model "B" will leave the New York agency on Saturday at 12 o'clock for Poughkeepsie. The high speed clutch will be thrown in and sealed by A. B Tucker, secretary of the club, in the presence of Mr Boutsel, who will accompany the car and act in the capacity of observer in the interests of the club. The most direct route to the Nelson House will be followed. Joseph Tracy, the well known driver who took third place in the Vanderbilt race last year, and Ernest Kooler, who is to drive the big six-cylinder Oldsmobile in the cup race this year, will pilot the car. In view of the fact that there are several well known steep grades to be negotiated during the progress of the trip, and the proposed test is sure to attract a lot of attention, not only among automobilists, but among tradesmen, some of whom doubt the ability of any automobile to make the entire trip on the high speed.

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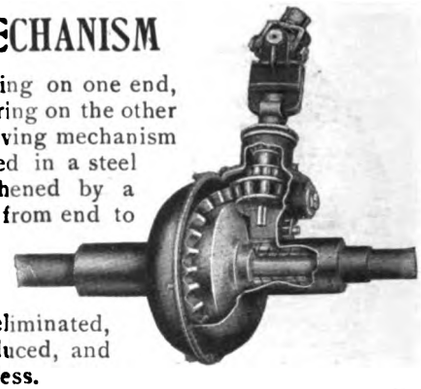
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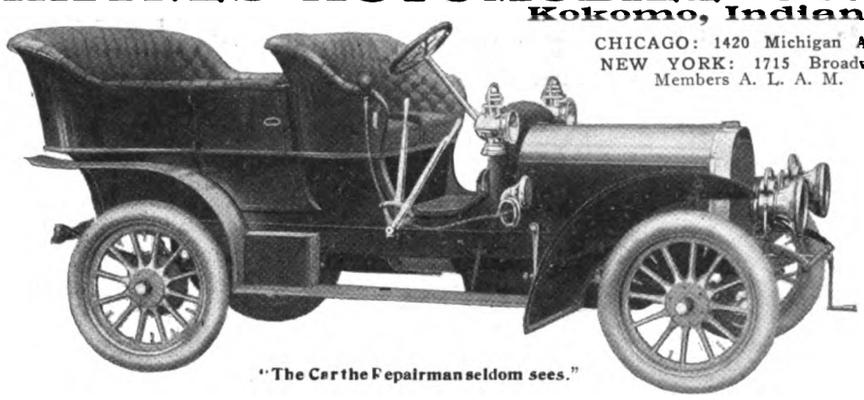


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Ramsay-Hutchins Rubber Co., Los Angeles

The Incomparable

WHITE

The Car for Service.



ANOTHER BIG VICTORY ABROAD.

The annual open hill-climb of the Midland Automobile Club held June 16th, the the biggest event of the kind in England, resulted in a clean-cut victory for an 18 h. p. White steamer. The White climbed the hill six seconds faster than any of its 34 competitors which included all the best-known English, French and German cars, the ratings of which ranged up to 60 h. p.

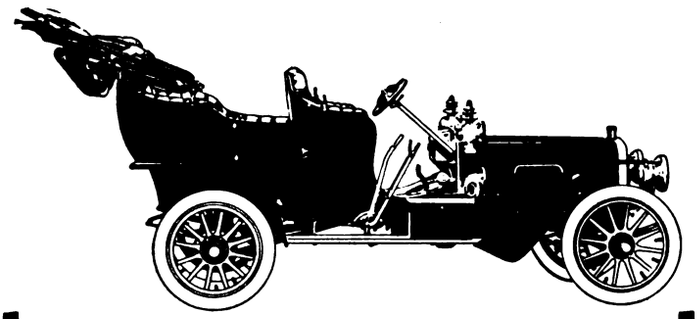
Thus is added another to the long string of White victories abroad which commenced with the winning of the English Reliability Trials in 1902.

Write for new testimonial booklet.

WHITE SEWING MACHINE COMPANY

CLEVELAND, OHIO

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WE ARE OFTEN ASKED TO EXPLAIN in what particular the six-cylinder car excels—in a word, what is the basis of this six-cylinder enthusiasm.

IT'S DIFFICULT TO ANSWER that question in a few words; the "year ahead" type of car possesses so many advantages, all arising from the addition of two cylinders they cannot well be summed up in a sentence. There is, however, one quality which, were there no others, would be sufficient to account for the popularity of this type among progressive designers as well as buyers—that is its total lack of vibration.

VIBRATION IS THE "WHITE PLAGUE" of the automobile. It is as slow, as insidious, as relentless and as certain in its ravages on the mechanism of a car as tuberculosis is in the human system. Take any car with motor of less than six cyclinders; a smooth running, silent, powerful machine when it leaves the factory—a triumph of the automobile builders' art it seems; at the end of the third year it is a creaky, rattley, shaky bunch of half-junk; every rivet and bolt has worked loose, nuts have come off, frame corners begun to part; Crystallization also has begun its work and no piece of metal in the entire car retains more than half its original strength. Those are the symptoms of the "White Plague" of the motor car—Vibration. Not road vibration, mind you—that is absorbed by the tires and springs. It is the incessant quiver of the motor—thousand or more per minute—that does the deadly work that shortens the serviceable life of the car.

SIX CYLINDERS MORE THAN DOUBLES the life of a car—is not that good and sufficient grounds for the prediction that in all cars of over 30 horse power, the "six" is the standard type of the future?

Model "K" FORD—Six-cylinders; 40 h. p.; Double ignition—magneto and storage batteries; 50 miles an hour and "a gourmond for hills"; $2,500.

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BRANCHES: 147-149-151-153 Columbus Ave., Boston; 721-23 Broadway, New York; 727 Main St, Buffalo; Broad and Buttonwood Sts., Philadelphia; 1444 Michigan Ave, Chicago; 1913 S. E. Euclid Ave., Cleveland and 318-320 E. 11th St, Kansas City.

CANADIAN TRADE supplied by Ford Motor Company of Canada, Ltd., Walkerville, Ontario.



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you are endangering life and property and wasting money unless you are using

The Snell Hydraulic System

for handling and storing gasolene.

Approved by the New York Board of Fire Underwriters, the Board of Health and the Fire Dep't.

WITHOUT this system you are in constant danger from explosion.

¶ You allow the most vital part of the gasolene to evaporate— a loss.

¶ You lose from 10 per cent. to 50 per cent. of your gasolene from leakage— a loss.

¶ You pay from five to ten cents a gallon more than necessary— a loss.

¶ You pay an unnecessarily high premium for fire insurance— a loss.

¶ You have trouble with your engine due to dirt and water in your gasolene.

¶ You pay 80 per cent. too much for handling your gasolene— a loss.

¶ The Snell Hydraulic System pays for itself in an incredibly short time—then it earns money for you.

Your need for this system is serious and immediate. There are fifteen good business reasons why you should install it at once.

We will send you, on request, a booklet showing you its method of operating, how it protects you and saves you money.

SAFETY TANK CO., Dept. W.

Selling Agents Hydraulic Oil Storage and Distributing Co.

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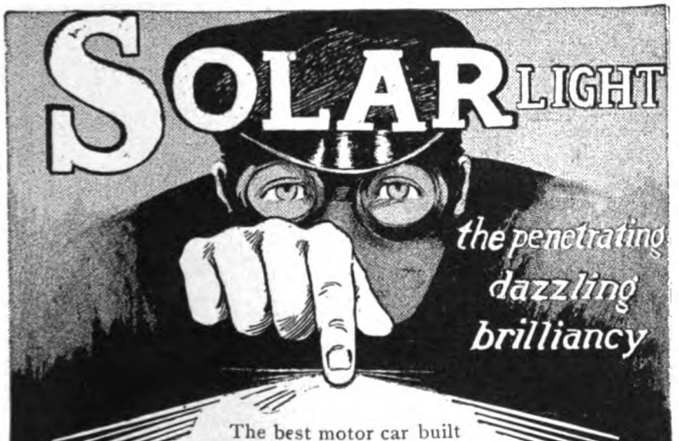
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Michelin Tires win every important race in the world. A road race is a hard strain on tires, proves their endurance and reliability. Want 'em? Cheaper tires are not cheap.

MICHELIN PRODUCTS SELLING COMPANY, Inc.,

EXCLUSIVE AMERICAN AGENTS

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The best motor car built is incomplete without

SOLAR LAMPS

There is no danger in the night for the car with the SOLAR because there is light and plenty of it—a brilliant, penetrating light that pierces the distant obstruction and at the same time, lightens up the ground right in front of the car.

The SOLAR is extra heavy, extra solid, extra handsome

The SOLAR GENERATOR is made of seamless brass shells —without solder or weld.

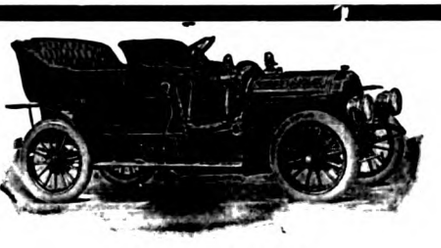
It has a water jacket that cools the gas—

The wick-feed regulates the water-flow so there is no flooding—no deluge—

Light—constant—unfailing—without trouble—

BADGER BRASS MFG. CO.,

Kenosha, Wisconsin. 11 Warren St., New York City.



WHY IS THE

ROYAL TOURIST

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ASK AN OWNER.

ROYAL

Model G. $3500.00 40 H. P.

THE ROYAL MOTOR CAR CO.

Cleveland, Ohio.

AGENTS: C. A. DUERR & CO., New York, N. Y.; G. J. DUNHAM, Boston, Mass.; THE McDUFFEE AUTOMOBILE CO., Chicago, Ill.; G. W. CAPLIN, Minneapolis, Minn.; AUTOMOBILE & SUPPLY CO., Lim., Toronto, Ont.; MOTOR SHOP, Philadelphia, Pa.; REYBURN MOTOR CAR CO., St. Louis, Mo.; STANDARD AUTOMOBILE CO., Pittsburg, Pa.; AMOS-PIERCE AUTO CO., Syracuse, N. Y.; SCHOEFFEL CO., Rochester, N. Y.; ROYAL MOTOR CAR AGENCY, San Francisco, Cal.

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A TANK OF GAS—A KEY TO TURN IT ON—A MATCH TO LIGHT IT.

Prest-O-Lite gas is generated in advance, purified, cleaned, cooled, dried and condensed in tanks so it is easy to handle, easy to carry, and always ready for use.

Prest-O-Lite is compressed so you may regulate the pressure to suit yourself. It always gives even, steady, brilliant light.

When the gas in a Prest-O-Lite tank gives out, you get a new tank ready full, for the price of re-charging. Five minutes is enough time for replacing and—there you are, with light enough for as many hours as your tank holds cubic feet of gas (large ones 70 cubic feet, small ones 40).

Write to-day for our book "Ready Made Gas for Auto Lights. It tells how and why Prest-O-Lite does away with all the evils of the old fashioned generator method of making light for a motor car.

Your name and address on a post card mailed to us now will bring you the book at once post paid.

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Over 400 Supply Stations—one in each important city of the United States. Ask for list.

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Side-Wire Solid Tires

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Recognized as the most satisfactory means of ignition.

Now used and endorsed by 52 of the leading automobile and motor boat manufacturers.

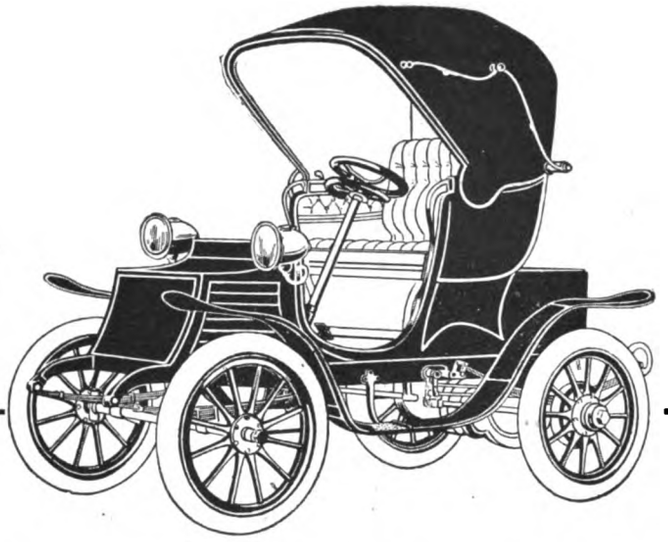
Every battery guaranteed to give satisfaction or purchase money refunded.

Write for descriptive pamphlet.

WITHERBEE IGNITER COMPANY

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THE STATELY, STYLISH POPE-WAVERLEY STANHOPE

Model 53 STANHOPE SPECIAL, Price $2,000, has many new and distinctive features. It is truly a departure in many particulars, and yet none of its features are radical in principle or untried in practice.

The hooded dash, the sliding steering wheel and in connection with it the operation of the electric controller, the use throughout of self containedbearings and the axle of floating type all have been carefully thought out and will be appreciated at a glance. ¶ The painting, the upholstery and all the appointments of a fine carriage have been studied in detail.

We make Runabouts, Surreys, Stanhopes, Coupes, Station and Delivery Wagons. Also Electric Trucks.

POPE Waverley ELECTRICS AUTOMOBILES

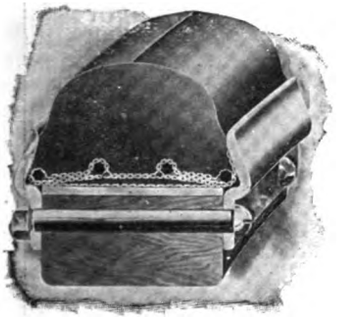
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Waverley Dept., INDIANAPOLIS, IND.

BOSTON: 223 Columbus Ave. N. Y. CITY: 1733 Broadway. WASHINGTON, D. C.: 819 14th St., N. W.

POPE Waverley ELECTRICS AUTOMOBILES

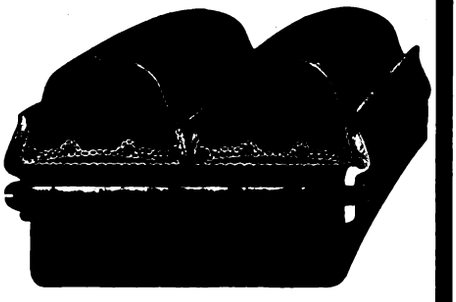


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SOLID TIRES



TWIN
FOR HEAVY WORK

Note Method of Attachment.

The successful commercial vehicle tire must have its retaining device vulcanized inside the tire, otherwise the attachments rust. The HARTFORD is secure and rust-proof.

THE HARTFORD RUBBER WORKS CO., Hartford, Conn.

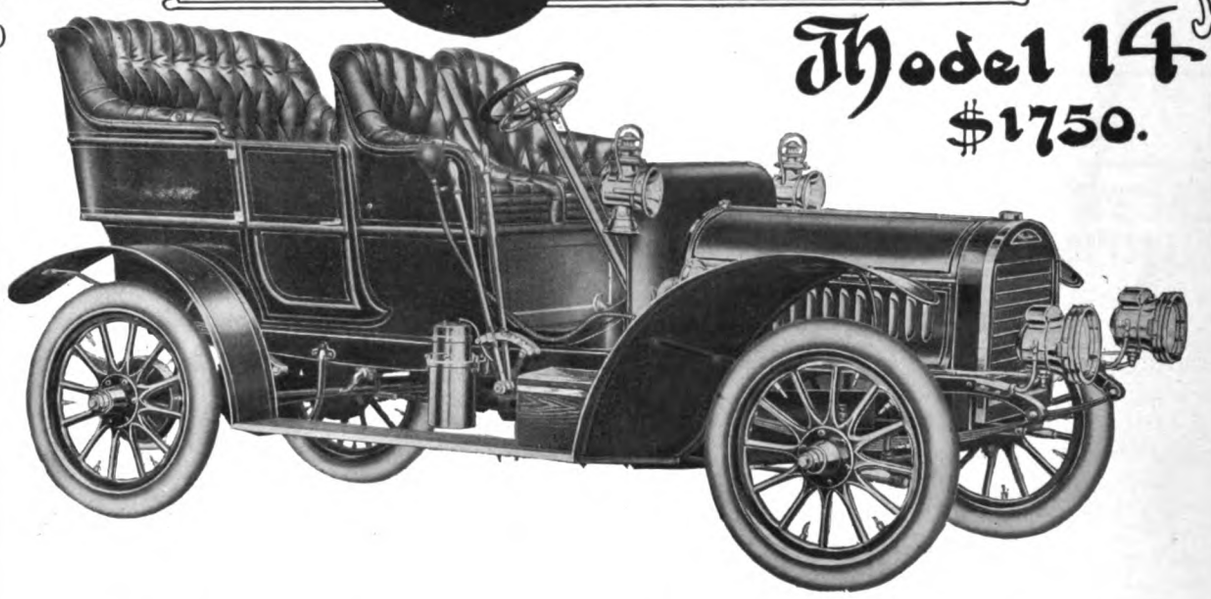
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Model 14
$1750.



A medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THOMAS B. JEFFERY & COMPANY.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, July 5, 1906. No. 5

BENNETT JOINS KNOX STAFF

New England Concern Captures the Well-Known Jeffery Sales Manager.

Having acquired an interest in the Knox Automobile Co., Springfield, Mass., George W. Bennett will become sales manager of that concern on August 1st next.

It is safe to say that than this, there are few changes in the trade calculated to cause more infeigned and widespread surprise. For nearly 21 years Bennett has been associated with the Jeffery enterprises and the severance of his relations with T. B. Jeffery & Co. seemed akin to an impossibility.

Mr. Bennett has had charge of the Jeffery sales department ever since the Rambler car first made it appearance and there has been nothing negative in the service he has performed or the influence he has wielded in the National Association of Automobile Manufacturers, of which he is a representative and in which he was the Rambler representative. Bennett ever has been a forceful worker and an able one and cannot well fail to add a deal of vitality to the Knox interests.

Objects to Noise and Smell.

Judge Fessenden, last week, reserved his decision at the close of the hearing on the bill of Charles R. Evans against Engene N. Foss for an injunction to restrain the defendant from erecting a garage in Newbury street, Boston, Mass. The complainant's estate adjoins that of the defendant and he alleges that under restrictions imposed upon the land the defendant has no right to erect the garage. He objects to the supposed noise that will result from the repairing of automobiles and from other causes and also to the smell of gasolene.

Wishes Five Thousand for Horn Tooting.

Claiming that the noise of an automobile horn frightened the horse she was driving, causing it to run away, with injury to herself, Emma E. Cole has brought suit against the Automobile Outing Co., of Baltimore, Md. She asks $5,000. This is the first case of its kind to be tried in Maryland.

Will Meet July 23.

D. J. Post, president of the Motor and Accessories Association, Inc., has issued a call for the semi-annual meeting of that organization to be held at the Hotel Isleworth, Atlantic City, N. J., on July 25th. A resume of the work of the association for the past six months, together with a number of matters of general interest, will be submitted and discussed.

The Cycle Manufacturers' Association, and the Cycle Parts and Accessories Association have also called a joint meeting of their respective bodies at the same place and date.

Excursion rates have been granted on the certificate plan of a fare and a third for the round trip, to the Cycle Parts and Accessories Association, which will also be open to the members of the Motor and Accessories Association, by the Trunk Line, and the Central Traffic Association, and those belonging to either organization who desire to take advantage of the special rate should apply to the ticket agent.

Open Shop Unionism Coming.

Unionism of an open shop nature is due in the automobile trade, according to a report sent out by the National Metal Trades Associations this week. The association composed of employers in the metal trades, has sent organizers to the automobile factories of New York and suburban towns to enroll the big automobile concerns in the association. The claim is put forth that nearly all the automobile factories in the West have joined the National Metal Trades Association is committed to the open shop and its members employ about 130,000 machinists, pattern makers, coppersmiths, boilermakers and others on the open shop plan.

Will Close up and Quit.

According to advices from Philadelphia this week, the Pennsylvania Electric Vehicle Co. will be dissolved this month and no further transfers of stocks will be made after July 24. The company has never enjoyed a very prosperous career.

THREE SCORE ARE SORRY

They Gave up Twenty-five Each then the Automobile School Closed.

There are sixty sorrowing students in Lynn, Mass., or rather they were stundents until Wednesday of last week. On that day the three-score pupils who had attended the Lynn automobile school came to the full realization that they each had been buncoed out of $25. The Lynn Automobile School closed its doors two weeks ago. After the first lamentations the students marched in solid phalanx on a local lawyer and asked how they might get back the $25 they each had paid in "tuition" fees. The lawyer informed them they might get their money by prayer, but that they stood little chance in any other way, as the contracts they held with the school were nothing more than elaborate receipts.

The school has been in operation six months and purported to make expert chauffeurs for $25 a head. The principals caught the sixty who aspired to sit at the wheels of big touring cars, and have no more worry than to spend their salaries. Now the sixty are looking for the return of the hard-earned twenty-five.

The trouble began first in Worcester, where the manager took all the property and decamped. It spread to Providence, where the Worcester men levied on the automobiles and equipment. Now it has struck Lynn, where everything is topsy-turvy, and the budding chauffeurs at that place have come to the conclusion that they figure nowhere in the proceedings except as active victims.

Creek and the Visions he Creates.

Marion, Ind., has visions of an immense automobile factory, which will employ 1,250 men. R. A. Creek and Secretary Wiley, of the Commercial Club, have given out that a large company is desirous of locating in Marion. Creek has not divulged the name of the company, but states that it does not "belong to the trust, being an independent concern."

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In the Retail World.

R. Gordon Carew, New York agent for the Stearns car, is establishing his salesroom at Broadway and Seventy-first street.

P. L. Gregorie is building a garage in Varnum avenue near Mammoth road, Lynn, Mass. The building will measure 48x32 feet.

As a convenience to its members, the Wheeling Country Club, of Wheeling, W. Va., will erect a spacious garage on its grounds. Louis Dimmie will be in charge.

The Elmore Automobile Company, of New York City, has opened a garage at 237 Halsey street, Newark, N. J. A. Humphreyville is the manager of the branch garage.

The Contractors' Electrical Repair Co., which formerly did a garage business in Brooklyn, has moved to Mount Vernon, N. Y. It has opened a garage at 9 Prospect street.

Katterjohn and Dalby, electricians at Paducah, Ky., will shortly enter the automobile trade. They are building a garage 100x60 feet, on Sixth, between Jefferson and Monroe streets.

The building and contents of the Southern Automobile Co., Nashville, Tenn., was badly damaged by fire on Thursday of last week. The loss, estimated at $7,000, is protected by insurance.

Jordan & Davis, Norfolk, Va., are erecting a garage at the corner of Granby and Tenth streets, that city. The building, which will be of frame, with galvanized covering, will contain 5,000 square feet.

The garage business at Main and Hardin streets, Findlay, Ohio, conducted by Kelly & Zall, has been sold to Grant Van Horn, who will assume possession at once. Kelley will remain with the new firm.

F. C. Metz and F. G. Haus have opened a garage at Mignonette and Randolph streets, Pittsburg, Pa., under the trade name of the Logan Automobile Co. Of course, the new concern will handle the Logan car.

The Motor Tallyho Company has begun business for the season at Asbury Park, N. J. Five big machines have arrived and will be put into commission carrying parties to points of interest near that resort.

The Howard Automobile Co., Cambridge, Mass., will soon begin the erection of its new garage upon the site of their present location. The building will be two stories high and will have a floor space of 22,000 square feet, against the present area of 750 feet.

Before the month ends the Acme Garage Co., Tacoma, Wash., will be housed in its new four-story concrete and brick garage at 1210-1216 Tacoma avenue. The building measures 75x100 feet and has the largest floor space of any automobile establishment in the city.

By making a number of changes the Delaware Auto Storage and Repair Co., of Wilmington, Del., now has twice as much room as heretofore. The company is State agent for Cadillac, Columbia, Stearns and Orient cars, and in the future will carry a full line of sundries and deal in second-hand cars.

The Charles Abresch Co., Milwaukee, Wis., is having plans made for a four-story addition, 50x75 feet, to their present plant on Fourth street, to be devoted, it is stated, to the manufacture of automobiles. Further details of the kind of machine the Milwaukee company proposes to make, are lacking.

With the completion of the Montclair Automobile Station, at Bloomfield avenue and Valley road, Montclair, N. J., now has what is considered one of the best equipped garages in northern New Jersey. The structure is built of pressed concrete bricks, and is absolutely fireproof. It has a frontage of 75 feet and a depth of 200 feet.

Fire in the establishment of the Packard Motor Car Co., at 1540 Broadway, New York City, last Friday, did damage to the extent of about $5,000. The employees of the garage had the fire well in hand when the firemen arrived. It originated in the basement, where a careless plumber tried to find a leak by means of a lighted candle.

Another automobile agency has secured permanent quarters in Cincinati. The Jungclass Bros. Co. has leased the building at the southeast corner of Reading road and June streets for five years at $1,200 per annum, with the privilege of purchasing at $15,000. The company will conduct a garage and general automobile business. The building has heretofore been used for bowling alley purposes and will be remodeled.

There will be a change in the management of the Southern Automobile Co., of Nashville, Tenn., which has a light delivery wagon under way. The business has been sold for $50,000 to Duncan Kenner and Charles C. Coddington. Kenner will be the president, Coddington vice-president and general manager, and Charles Gilbert auditor. W. J. Cummins, formerly president of the company, retains an interest in the company and will be one of the directors.

The new garage and salesrooms now under course of construction for the Abbott Cycle Co., on Baronne street, New Orleans, La., will, when completed, be one of the finest and best equipped buildings of its kind in the South. The front of the building will be of pressed brick and plate glass, and the floors are of cement, the garage and salesrooms occupying the first floor with the repair shop on the second. The building measures 100x100 feet, thus affording 20,000 square feet of floor space. Long distance gasolene storage outfits, self-measuring oil tanks, electric buffing equipment and compressed air in all parts of the building are some of the modern features. The Abbott Cycle Co. has been in the automobile business for four years, during which time it has built up an enviable trade in the South. The company handles the Packard, Peerless and Olds gasolene and the Baker electric cars. The garage will be ready for occupancy about October 1.

The new station of the Albany Garage Co., at 28-30 Howard street, Albany, just completed, is one of the largest and best equipped garages in the State, outside of New York City. The building is four stories high with a basement, with a 70-foot frontage and running back 100 feet. It is constructed of steel and cement, the front being of selected vitrified red brick with granite trimmings, and is, of course, fireproof.

The garage has an elevator capable of raising a car nineteen feet in length and weighing 5,000 pounds, running from the top to the bottom of the building. In front is a gasolene tank of some 400 gallons capacity (with Bowser pump attachment). Each floor has attachments to air-cocks, which provide air for tires by a simple turn of the stopper. The top floor is given up to a machine shop, the other floors being used solely for storage or show-rooms for the standard makes of machine for which the company are agents. The lighting is by electricity and the place is provided with numbers of large windows.

The Week's Incorporations.

Brooklyn, N. Y.—Union Automobile Co., under New York laws, with $1,500 capital. Corporators—H. G. Kannofsky, M. Finkelstein and S. Barnett.

Houston, Texas—Automobile Club of Houston, under Texas laws, with no capital; to promote automobilism. Corporators—M. J. Lessing, R. A. Burkett, Henry Stude et als.

Tarrytown, N. Y.—The Contest Branch of Maxwell-Briscoe, under New York laws, with $6,000 capital. Corporators—F. H. Lawrence, Brooklyn; N. Betjeman, New York City, and W. H. Webster, Pelham, N. J.

Gloucester, Mass.—North Shore Transfer Co., under Massachusetts laws, with $10,000 capital; to conduct automobile livery. Corporators—President, C. W. Pierce, and secretary-treasurer, W. G. Brown, both of Gloucester.

New York City, N. Y.—L. I. Engine Co., under New York laws, with $1,000 capital; to manufacture internal combustion engines and electrical devices. Corporators—E. E. Pollock, Glen Ridge, N. J.; W. E. Powers, Isabel Testut, New York City.

New York City, N. Y.—New England Alcohol Refining Co., under New York laws, with $100,000 capital; to manufacture wood, grain and other alcohol. Corporators—C. D. Griesemer, L. Scheelhaas, F. W. Ashton, C. C. Yelharret and I. T. Sherman, all of Brooklyn.

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SMASHED THE RECORD

For the Fiscal Year Just Ended the Automobile Trade Surprised Everyone.

With the ending of the fiscal year of 1905-6, the returns issued by the Bureau of Statistics of the Department of Commerce and Labor at Washington, show that the automobile industry has broken all previous records, and reveal a condition best expressed by a summary which shows that approximately four million dollars worth of cars were imported during the year, three million dollars worth exported, and, roughly speaking, twenty-six million dollars worth of cars were made by the home manufacturers.

According to a preliminary report of the Census Bureau $26,645,064 worth of machines were made during the closing year. This figure includes the value of repairing and other work done by automobile factories, but does not comprehend $879,205 worth of machines made as side issues to other lines of activity, so that the first quotation seems to place a close approximation to the correct amount.

The imports of the fiscal year comprised 1,325 cars having a total appraised value of $4,726,189.01, as compared with 786 cars valued at $2,962,473.40, brought in during the preceding twelve-month. The growth of the imports during the last four years, is shown by the totals of $1,500,000 and $1,000,000 in 1904 and 1903, respectively, speaking in round numbers, when compared with the later figures.

Of the exports, although the details of distribution have not as yet been worked out, it is stated that during the first ten months of the year, $616,177 went to the United Kingdom, $170,601 to France, $227,588 to Italy, and $57,259 to Germany, the total rising upwards of $3,000,000 in all probability. The exports for 1903 and 1904, were approximately $1,643,029 and $1,897,510, in the aggregate, respectively.

In its industrial effect upon the country, the importance of the industry is keeping pace with its financial growth, as is shown by the ceusus returns, the number of wage earners employed having risen from 2,242 in 1900 to 10,239 in 1905. The gross outlay in wages has developed from $1,320,658 to $6,178,950 during the same interval, while the outlay in salaries to officers and clerks has increased from $294,770 to $1,060,425. The value of materials utilized in the manufacture of automobiles, which, also, has an important bearing on the industrial side of the question, has risen from $1,804,287 in 1900, to $11,658,138.

No Railroad Cash Discounts Considered.

Out in Kenosha, Wis., the Thomas B. Jeffery & Co is having a little fight with the Chicago & Milwaukee Electric Railway Co. It appears that the railroad wants to cut through the Jeffery property and does not wish to pay for what damage it causes. The condemnation suit came up in the circuit court last week and the right to cut a right-of-way through, regardless of the wishes of the Jeffery Co., was asked for. It was granted, commissioners placing the damage at $50,000. The railway company had the cash in court, but the lawyer for the Jeffery company figured that the damage would be about $200,000 and refused to permit the building of the line through the property without a large bond in addition to the cash given. Judge Belden took the matter under advisement.

Need Twice as Much Room.

In order to make provision for the greatly increased demand for Timken roller bearings as well as commercial truck axles, hubs and similar specialties which it manufactures, the Timken Roller Bearing Axle Co., of Canton, Ohio, have found it necessary to double the capacity of their present plant. The buildings are already in the course of erection and it is expected to have them in shape for occupancy in a short time.

Why Indianapolis is Happy.

Evidence of the growth of Indianapolis (Ind.) automobile manufacturing companies is contained in the report of the County Board of Reviews tax assessments for 1906. Last year the National Motor Vehicle Co. was assessed $70,760; this year it has been raised to $75,000. In 1905 the Nordyke & Marmon Co. was assessed $134,350, while for 1906 the assessment has been increased by $12,790.

Trying to Organize in Columbus.

If present plans do not miscarry, Columbus, Ohio, will have another automobile factory. F. S. Harmer, a former draughtsman employed by the Oscar Lear Automobile Co., has designed a new air-cooled car and Edward Born and Thomas Curtin are endeavoring to organize a company with $50,000 capital.

The Doctor First; Himself Next.

George W. Hatch, who conducts a bicycle shop at 1003 East Main street, Jackson, Mich., has entered the automobile manufacturing business. The trade need not be unnecessarily alarmed, however, for Hatch has as yet constructed only one car, and that for a local physician; now he is building one for himself.

Growing and Gearing.

The Warner Gear Co., with factories at Clerk and Penn streets, Muncie, Ind., has outgrown the new quarters built less than a year ago. To allow for the expansion, a large two-story building is being erected.

"Acme" McCutcheon Out.

John J. McCutcheon, sales manager of the Acme Motor Car Co., of Reading, Pa., has resigned. His plans for the future have not been made public.

STILL CLIMBING UP

Exports Almost a Quarter of a Million Greater than Last Year.

Export returns for the month of May are marked by an advance of almost $200,000 in round numbers over the corresponding month of a year ago and the detailed report evidences an equally substantial upward tendency throughout. Unfortunately the publication of an itemized report does not extend back sufficiently far to make a comparison of the growth in this respect possible, but the increase is sufficiently striking even when compared with the month just preceding, that is, April, 1906. In the latter the total valuation exported to the United Kingdom was $74,746, while for May it was $138,109. France and Germany, which complete the trio of the most important automobile producing countries, advanced from $31,375 to $55,221 and from $11,517 to $22,366, respectively. However, nothing illustrates the steady increase quite so well as a comparison of the figures over a more extended period. These were $1,824,621, in 1904, $1,247,771 in 1905, and $1,267,207 for the period of eleven months ending with May, 1906.

The report for May follows in detail:

Exported to:	May, 1906	11 Months End'g May
France	55,221	225,822
Germany	22,366	79,625
Italy	17,770	245,358
Other Europe	35,397	158,630
British North America	120,159	556,009
Mexico	48,690	341,692
West Indies & Bermuda	12,588	237,264
South America	15,495	77,275
British East Indies	3,651	34,697
British Australasia	7,467	155,591
Other Asia & Oceania	5,636	49,732
Africa	1,479	28,404
Other Countries	513	13,363
Total	$484,541	$2,957,748

Extent of England's Trade.

During the month of May, the immediate effect of the Continental labor troubles was manifested in a falling off in the British imports of cars and parts. The returns show a total valuation of $1,969,015, as against $2,016,145 in April last, and $2,024,045 in May, 1905. The items comprised 508 complete cars, representing a value of $1,085,250, and $883,865 worth of component parts. The total to the end of May amounted to $9,605,470, in contrast with $7,261,015 for the corresponding period of a year ago. Exports, on the other hand, continued to manifest a slight gain, 71 cars being shipped out of the country during the month at a declared value of $146,780, which, with parts to the amount of $133,150, made a total of $279,930, as against the total of $201,960 in the preceding month and only $128,420, the aggregate of May, 1905.

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The Lottery of Racing.

Many are called but few are chosen, would appear to fittingly describe the small proportion of the usually large number of entrants that succeed in finishing a road race. Despite the most elaborate precautions that can be taken, expense being entirely a secondary consideration, there is never the slightest certainty when a car comes to the starting line that it will complete the allotted number of laps of the course. It is nothing more or less than a process of elimination and few more striking examples of it have been afforded than the French engineered event of last week, the Grand Prix.

The car upon which the manufacturer has spent months of time and effort in creating, not to mention the cost of it all; for which he has retained a high-priced racing driver to try out for weeks prior to the event, and to represent him in the latter itself, may complete the required number of rounds in good time. It may run right up to the last lap in the best of form and then come to grief, or this may happen to it before even the first circuit of the course has been reeled off. It may win, of course, but there are many, many chances against it.

As an instance of the early beginning of the process of elimination, two of the Grand Prix entrants saw their hopes of ever finishing the race disappear before half the first round had been completed; one broke a wheel and capsized, another tried conclusions with a stone wall. In the second lap on the second day of the race, attempting to round a curve at an excessive speed resulted in the car turning turtle. Close behind it another car lost one of its front wheels and ended its chances, and so it went with more than half of the starters. formances were thought to be certain of formances wer thought to be certain of the honor at least of place, if not the victory, even failed to materialize in the small string that trailed in before the watches marked the expiration of the time limit. Out of 32 starters, 11 or slightly more than a third, completed the prescribed number of laps. There is little doubt that the game is worth a candle, but that it is a game of many chances is evident.

Wind Shield Dangers.

So many objections were raised against the use of glass screens in front of automobile drivers when they first were proposed, that for a time it appeared that they never would become popularized. These were in part overcome, however, and their use became general, without, strange as it may seem, any of the drawbacks being in any way obviated except by the occasional use of wire-glass, which in itself is very trying to the eyes. In actual practice, however, it appears that these difficulties prove not to be so formidable as it had been thought they would, few if any mishaps due to the effects of flying bits of glass being recorded in cases of accident. That there is a certain amount of latent danger from this source is perfectly apparent on the other hand, and that this lies not so much in the liability of breakage as from the possible obstruction to vision is apparently is true.

Rain, hail and sleet quickly form a thin film of moisture on the exposed surface which, though is may not seriously interfere with the driver's sight of the track, yet serve to distract his attention from it, and tend to confuse him. Especially when water collects in large drops is the danger from this source greatest, as the reflected light cast out by the thousands of little aqueous reflectors is very confusing. When driving even at a moderate pace, a comparatively slight error in vision may cause serious trouble, and when brought about by such a cause is most deplorable. Another source of danger is found in night driving when passing street lamps. For the surface of the glass becomes a fairly efficient reflector and casts a blinding ray of light back into the eye of the driver confusing, of not for the moment actually paralyzing his sight.

A recent instance of the disagreeable results which may arise from this cause came out in a London law court where a motorist was fined something like $40 for "driving to the common danger." In the course of the trial, it appeared that the accident out of which the charge grew, and which had caused the smashing of a cab and injury to the horse, had been brought about through the motorist's losing sight of the street for an instant when blinded by a reflection from a street lamp which he was passing. Just at that instant, the cab turned into his path from a cross-street, and he failed to see it.

However unusual accidents of this sort may be, and however slight may appear to be the peril from this source, the illustration serves to point to a certain amount of danger. To avoid it, two different remedies may be applied. One is to lift the windshield whenever there appears to be any condition which would seem to make it dangerous. And the other is to drive with exceeding caution at such times, taking absolutely no chances, and never for an instant trusting to luck when sight of the road is temporarily obscured. But since the lifting of the shield would seem to question its effectiveness, and since in stormy weather it is needed most of all, the latter method would seem to be the best of the two. The fact that so few casualties traceable to wind shields are reported, points to the efficacy of caution in its use, and the few accidents on record which are laid to it also seem to argue the same point.

Moving in the Wrong Direction.

While criticism of the rules for the running of this year's vanderbilt cup race may appear to be somewhat premature in view of the fact that they have not as yet been definitely formulated, it is understood that

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there will be an attempt to do away with the services of the numerous elaborate tire replacement stations with their trained crews which have always been a characteristic of every important road race prior to the Grand Prix. And the report that such a rule may be adopted has been sufficient to awaken protest on the part of the manufacturers entering cars. It is not fair to the car or to the driver and his mechanic to expect him to attend to this part of the car. Surely the nervous strain imposed upon both of them during the running of such an event should be a sufficient burden, say these dissenting voices, without adding to it the necessity of carrying an outfit of tires and applying them when needed.

More haste, less speed, is a maxim that has a direct bearing upon a tire replacement, and it is the fear of these critics that saddling this important role upon the chauffeur and his assistant in addition to their other duties would impose the necessity of undue haste upon unskilled hands and the results might well prove disastrous. Naturally, both occupants of the car chafe at every moment's delay that keeps them off the road and it is to be feared that this impatience to keep going at whatever cost would be apt to indirectly prove the undoing of the car, if not the risking of the lives of those in charge of it through the presence of hastily made and insecure fastenings. It can readily be appreciated that the very safety of the occupants of the car is at stake.

On the other hand, the reason that may lead to the adoption of such a rule is not hard to fathom. It springs from a desire to make the race to the greatest extent possible, a test of the car and its equipment and in order to do this, foreign aid should be eliminated. It must be admitted that there is nothing in the sporting world today that can compare for elaborateness or expense entailed with the preparations made for the running of an automobile road race, although that, of course, is neither here nor there. As already stated, a precedent for the proposed innovation is to be found in the recent running of the Grand Prix in France, in which for the first time in the history of automobile road racing the tire station was not a feature. But more than one of the contestants had taken steps to make up for the deficit by carrying inflated tires on rims that merely needed bolting to the felly of the wheel to complete the replacement. And it is significant that the winner of the race was one of those thus provided while the only other car thus equipped arrived second the first day of the race and third at the finish—something that speaks for itself. But even at that, so much depends upon the proper and secure fastening of the tires that it would appear to be needlessly imperilling the driver and his mechanic to further burden them with this task. It would simply convert the race into a contest of endurance for the crews instead of the cars. And despite its importance where race winning is concerned, the tire equipment does not affect the success of the car considered as a machine.

Correct Car Classification.

That period is rapidly passing when simply to name the actual or alleged horsepower of a car, or to designate it as a runabout or touring car, will suffice. The public and the maker also, are beginning to realize that the requirements of different classes of work are so divergent that they hardly are to be included under a single group. The uses of commercial cars are so extreme that it is no longer thought wise even to attempt to use a touring chassis for a burden bearing vehicle, and the broader application of the same general principle, is beginning to be understood in the case of all vehicles, whether intended for business or pleasure purposes. Hence, there is a gradually appearing trend toward a classification of all types according to their intended use, less specific than that of horsepower or load capacity alone, yet by the same token, more inclusive.

In the beginning, all cars were touring cars in general intent. They may have been segregated somewhat according to style of body and motive power, but in general use they were intended to fit into any sort of use to which their owners cared to apply them. Then the gradual development of the technical side of motoring wrought heavy and elaborate cars, and for the sake of the man with moderate means, the lighter class of vehicle was produced and partly for lack of a better term, partly because it fitted the case very well indeed, it was called the runabout. Still later, the light touring car came upon the boards. But the genius of hard knocks is thrashing out a different method of graduation, which, though it may not yet be recognized, and though it may not come into actual existence as such for some time to come, yet is grounded on a far more rational basis.

Commercial vehicles, for instance, are now known as trucks or delivery wagons, light and heavy, according to their duty. With this classification in mind, the builder designs each vehicle with especial regard to its work, and the result is satisfactory just in accordance with his recognition of the conditions which that sort of work imposes.

A moment's consideration is sufficient to show that the fitness of a car for any one of these three classes of work is not alone a matter of gearing. The heavy touring machine geared down to low and moderate speeds may be handled well in city traffic, but it is heavier than the actual requirements of the service compel, and frequently it is too cumbersome to fit well in congested streets. The town car, on the other hand, though it may be geared up to any speed which decency may demand on the open road, yet lacks the power and endurance of the other, and if originally designed for town use, may have too small wheels and too little road clearance to be serviceable on bad roads. In other words, there are a host of differences between the essential requirements of the two branches of service when considered independntly of one another, and these go to form a wide gap between the specifications of the cars made to fit them.

The man in the street has no time to delve into technicalities sufficiently to pick out just the machine he needs by laborious comparison of the specifications of different cars, choosing by that method one which just fits his own case. Generally speaking, he knows better what he wants to do with a car than he does what sort of a car he wants. The time is coming when he will be relieved of most of the complications incident to purchasing a car at the present time, through just such a method of classification as this. If his car is designed for town use, he will find it up to his requirements without having to consider its gearing, ratio of weight to power, or intimate design. He will buy largely by the "looks," and general adaptibility of the car to his uses regardless of the works. As the sport of motoring becomes more and more a matter of course to the user, as the machine becomes more and more popular, the owner will find less and less time to investigate its specific features. He will come to trust the maker absolutely on such matters, and thus the issue will force itself, and ultimately bring about a strict classification according to duty.

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AMBITIOUS AMATEURS

They Essay an all Pure Meet and Furnish Plenty of Sport with it.

Belmont track, famous for having been once trod by Maud S. and Nancy Hanks, resounded last Saturday afternoon, 30th ult., to the whirr of fast going automobiles that tore around the classic oval in clouds of yellow dust. The occasion was a race meet for amateur drivers and regular stock cars, racing machines being barred from the contests. The porches of the clubhouse were filled and several hundred persons sat in the grandstand and watched their favorite cars puff around the track. All the events were from a flying start, a new departure, and all were contested, only one race having to be run over on account of a false start.

The first race on the program was for runabouts and it brought together a Locomobile and a Stanley steamer. The Stanley, driven by William Gill, of Baltimore, won out, covering the five miles in 7:23.

Then the Maxwell cars came out for a special race of their own. This was a three-mile event, with six entrants, five of them 20 horsepower touring cars and one 10 horsepower runabout. They swung out in the race in a pretty line and at the finish W. M. David drove his machine over first by a length over O'Rorke, who was navigating the runabout.

In the five-mile special for tonneau cars, W. H. Owens in a Jackson, beat out a field of four cars in 6 minutes 39¼ seconds. In the special race for Autocars. H. H. Whiting drove a 24 horsepower car five miles in 7 minutes 19¾ seconds, beating out the two other machines.

The "great" race of the day was that of the five-mile special for big cars. This brought together the Jackson and the Packard cars, with the Stanley steamer, entered, but the latter was not allowed to compete in the class. Gill offered to race the winner and the Jackson and the Packard started off by themselves.

At the end of thesecond mile the Packard cut into the pole with only a couple of feet to spare in front of the Jackson and at the close of the race was ahead by a length. The judges called a foul, but Owens, who was driving the Jackson, would not take the race that way and offered to race again. In the second race the Packard developed a great burst of speed, with E. Lash at the wheel and beat out its rival by nearly a quarter of a mile.

The Packard would not meet the Stanley steamer, claiming their class was not similar. Munyon, in a big Locomobile, offered to race the steamer. Munyon was given a running start and the other a standing start. The steamer won by a length in 7 minutes 15¼ seconds.

The free-for-all race brought together three Autocars, a Locomobile and the inevitable Stanley steamer. The Stanley won and then gave an exhibition of a mile in the fast time of 1 minute 7 seconds. Another exhibition was a three three-mile exhibition by a big 60 horsepower F. I. A. T. James Endicott was at the wheel, and he covered the three miles in 4 minutes 5 seconds.

In the obstruction race there were only two cars that qualified by clearing the barrels. These were an Autocar, driven by Brook, and a Maxwell, with O'Rorke at the helm. The match was so close that it was finally decided by a toss-up, and the Autocar won. Following are the summaries:

Five miles for runabouts—Won by William Gill, Stanley; second, J. L. Munyon, Locomobile. Time, 7:23.

Three miles for cars listing under $1,500—Won by W. M. David, 20 horsepower Maxwell; second, T. C. O'Rorke, 10 horsepower Maxwell; third, H. Heilerman, 20 horsepower Maxwell. Time, 5:32½.

Five miles for touring cars—Won by W. H. Owens, Rambler; second, George Barber, Rambler; third, A. H. Whiting, Autocar. Time, 6:39¼.

Five miles for cars listing at $2,750 or over—Won by E. Lash, 24 horsepower Packard; second, W. H. Owen, Jackson. Time, 6:16¾.

Five-mile special, runabouts—Won by A. H. Whiting, 24 horsepower Autocar; second, James Brown, 24 horsepower Autocar; third, George Brooks, 24 horsepower Autocar. Time, 7:19¾.

Three miles for Autocars—Won by James Brown, 24 horsepower touring car; second, George Brooks, 24 horsepower runabout; third, A. H. Whiting, 24 horsepower touring car. Time not taken.

Three miles against time—James Endicott, 60 horsepower F. I. A. T. Time, 4:35.

Five-mile match race between Roland Morgan, Stanley, and James Munyon, Locomobile—Won by Morgan. Time not taken.

Obstacle race, for cars with wheel base less than 100 inches—Won by George Brooks, Autocar; second, T. C. O'Rorke, Maxwell.

Five miles, free-for-all—Won by William Gill, Stanley; second, James Munyon, Locomobile; third, James Brown, Autocar. Time, 7:29.

One mile exhibition—William Gill, Stanley. Time, 1:07.

Will Boom Antipodean Automobiling.

Petroleum has been tapped at Moturoa, New Plymouth, in the North Island of New Zealand, says Engineering. The bore was commenced about eighteen months since, and it is now down to a depth of 2,330 feet. It is expected that the flow will be 100 barrels daily without pumping, and arrangements are being made to float a company to work the oil field and erect refineries.

PEORIA'S PERFORMANCES

Two of Them Were Swift Enough to Make Barney's Five Look Tame.

Peoria, Ill., is proud. The Peoria Automobile Club held a track meet on the mile oval in that city on Saturday, 23d inst., at which two stock cars, one of them of Illinois manufacture, eclipsed the time made by Barney Oldfield. Previous to the meet Oldfield was the hero of the day, but before the meet was over the Peerless driver was "de-lionized" and was placated by C. A. Bartholomew and B. Hough. The weather was threatening, so that not more than 1,000 persons saw the races, but though small in numbers, the onlookers had an overabundance of enthusiasm.

The chief event down on the card was a five-mile match race between Barney Oldfield and "Paul Albert, Etc.," and by a nice bit of stage work Oldfield won out at the tape by about three feet. The spectators thought it thrilling and cheered accordingly. Oldfield's time for the five miles was 6:05⅗, but this was knocked sky-high in two other events by C. A. Bartholomew and B. Hough. Bartholomew drove a Glide car in the five-mile time trials and the Illinois product certainly "glid," making the five laps in 6:03. In the five mile for stock cars, however, Bartholomew's figures were lowered by B. Hough, who drove the winning Pope-Toledo in 6:00⅗. Oldfield drove a three-mile exhibition in 2:58⅕, his fastest mile being caught at 58⅘ seconds. William Whiting, in a Cadillac, won the event for single-cylinder runabouts, and J. Fishbach, Glide, crossed the tape first in the race for two-cylinder cars. The summaries follow:

Two-miles, for single-cylinder runabouts—Won by William Whiting, Cadillac; second, J. French, St. Louis. Time, 4:08⅘.

Three miles for two-cylinder stock cars, listing under $1,500—Won by J. Fisbach, Glide; second, William Turnbull, Buick. Time, 6:14.

Two miles for motorcycles—Won by C. Her, Indian. Time, 3:17½.

Five miles against time—B. Price, St. Louis; time, 6:49⅗. C. A. Bartholomew, Glide; time, 6:03. J. Fishback, Glide; time, 7:51⅘.

Five mile match race between Barney Oldfield, Peerless, and Paul Albert, Peerless—Won by Oldfield. Time, by miles, 1:20, 2:38⅕, 3:44⅕, 4:50⅖, 6:05⅗.

Five miles for stock cars, listing under $3,000—Won by B. Hough, Pope-Toledo; second, C. A. Bartholomew, Glide; third, P. Price, St. Louis. Times, 6:03⅗, 6:50⅗, 7:06⅗.

Two-mile novelty—Won by Wm. Turnbull, Buick; second, C. A. Bartholomew, Glide; third, B. Meyers, Franklin. Times, 4:44⅗, 4:55⅕, 6:14⅕.

Three miles against time—Barney Oldfield, Peerless. Time by miles, 0:59⅗, 1:59⅗, 2:58⅕.

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BELIED ITS NAME

Because One Record was the only thing Broken on Break-Neck Hill.

Despite the condition of the roads and weather the hill climbing contest held by local enthusiasts at Atlantic Highlands, N. J., yesterday, was a success and attracted thousands of holiday pleasure seekers and cottagers to Break-Neck Hill, the scene of the conflict. Break-Neck hill is appropriately named; it is three-fifths of a mile long and in some places, it is claimed, the grade attains 40 per cent. In any event, it is one of the steepest hills in that part of New Jersey.

The first event, which was for cars of 10 horsepower or under, had five contestants, but three withdrew, after making the ascent in slow time, leaving the field to Chester A. Bentley, with his 10 horsepower Autocar, and W. J. McClure, 10 horsepower Cadillac. The former won by a good margin in 3:54.

The event for cars of 25 horsepower and under occasioned more excitement. Three cars made the ascent in good time, but the victory fell to H. J. Koehler in a 22 horsepower Buick. His time was 1:21¼. He beat James White in a 24 horsepower Packard, who made the climb in 1:34. C. B. Derby, with a 22 horsepower Buick, was third, in 1:40.

The free-for-all event for a silver cup narrowed down after a close struggle to Koehler's Buick and White's Packard. The first trial resulted in a tie, each car doing 1:20⅖. On the second trial Koehler got a good start and established an automobile record for the hill, 1:18⅗. White, however, was close behind him, finishing in 1:19. The summary:

For cars of 10 horsepower and under—Won by Chester A. Bentley, 10 horsepower Autocar; second, W. J. McClure, 10 horsepower Cadillac. Times, 3:54 and 3:55.

For cars of 25 horsepower and under—Won by H. J. Koehler, 22 horsepower Buick; second, James White, 24 horsepower Packard; third, C. B. Derby, 22 horsepower Buick. Times, 1:21⅗, 1:34 and 1:40.

Free-for-all—Won by J. H. Koehler, 22 horsepower Buick; second, James White, 24 horsepower Packard. Times, 1:18⅗, 1:19. First trial a tie in 1:20⅖.

Novel Idea in a Racing Car.

A most unusual type of construction was seen in the case of the Vulpes racing cars which took part in the Grand Prix event. Instead of the usual mounting of the power plant, the entire mechanism was placed above the frame, no sub-frame being used, and such conventionalities as bonnet and dash being discarded. The frame itself was suspended beneath the axles, instead of above them, as in common practice, the springs being of the usual semi-elliptical variety and up-turned in the ordinary way. By this means, the entire machine was built upon the frame as a sort of bed, instead of being suspended from it, in such a way that it formed a solid and staunch fabric not liable to warping to which certain other types are palpably adicted. Moreover, the arrangement served to lower the centre of gravity and produce an altogether suitable car for its own class of work.

Merely Another Name for Graft.

At a recent trial of a motorist for fracturing the speed limit, counsel for the defendant asked the complaining policeman at what end of the trap he was located, which elicited the prompt reply, "At the winning post." The magistrate thereupon expressed marked disapproval of the term "trap" and suggested that it be termed a "test" and the policeman improved upon the suggestion by withdrawing his former answer and stating that he was at the other end of the "control." It is merely a case of gasolene by any other name smelling as sweet, for in the end it inevitably leads to the police court which should now have a sign over its entrance, "Automobilists must pay before leaving." The business has become so flourishing in some towns that the addition of a system of checks and a cashier at the door might facilitate matters.

Good Road, but—Frelinghuysen.

By the first of August there should be another good stretch of macadam in Hunterdon county, New Jersey. The road will extend from Ringoes to Flemington, a distance of about six miles. Raritan township is paying the bill, through the county Board of Freeholders. This stretch will join with the section between Lambertville and Ringoes, which is nearly completed. When this entire distance is macadamized one of the prettiest sections of the State will be within easy reach of touring cars. The hotels of the section are good and garage facilities are constantly being improved. The route to Philadelphia may be varied agreeably by taking these new roads. It will be the first week in August, at the earliest, however, before the new road will be in touring condition.

Even Kuler had to Quit.

On account of the poor condition in which the storm left the course, the sand races at Long Beach, L. I., scheduled for yesterday, July 4, had to be called off. General Cutting, of the New York Oldsmobile Co., had arranged an elaborate program but Ernest Keeler, who is to drive an Olds car in the Vanderbilt elimination race, was the only driver who attempted to run over the tide washed and gullied course. He made two or three slow trials, and decided the beach was unfit for racing, so the committee abandoned the meet.

"AND IMPRISONMENT"

Clause in California's New Law Makes Things Unpleasant for Dingley.

Bert Dingley, of national automobile racing fame, faces a jail sentence for violating the State speed laws of California. Dingley was arrested two weeks ago for going faster than the law allows, it being his third offense; the other times Dingley was arrested he was fined $15 and $50, respectively. Until Dingley's arrest it has been customary to fine third offenders $100, but it has been discovered that the law prescribes for third offenses a fine of $100 "and" imprisonment from one to thirty days, and not a fine "or" imprisonment. This clause being the only one in the act in which the word "and" is specified it was natural for the authorities to misconstrue its meaning. Dingley was sentenced to a fine of $100 and imprisonment for one day, Judge Rose giving the minimum jail sentence, as the White driver was the first to fall under its provisions.

Dingley, however, has decided to fight the sentence and incidentally test the validity of the State law. He retained George McKeeby as counsel and upon a habeus corpus writ issued by Judge Courey, was released from custody.

The law will be attacked from two sides. Attorney McKeeby maintains, first, that the legislature cannot legislate as to the control of streets of cities and, second, that the law is class legislation, providing only for prosecution of a certain class.

Here's a Real Wonder.

Says a western scribe in dwelling upon the features of a specially built car of high price recently received in Denver: "The motive power is gasolene and the machine will run 210 miles at one charge on the four cylinders. The entire length is fifteen feet with the wheel base thirty-five inches from front to rear hub." This is followed by the equally illuminating morsel of information that "The speed is rated in French notation at 35 horsepower, which is about 75 American horsepower." There still seems to be some parts of the wild and woolly where the automobile does not appear to have made a very deep impression.

Titus Would try for the Team.

Rumor has it that if the ambitions of a certain Long Islander are fulfilled, one of the entries for the eliminating trials of the Vanderbilt race will come from near home. Lewis H. Titus, of Glen Cove, who is described as a "local mechanic," is said to be building a racing car from his own designs and has entered it as a candidate for one of the five places on the American team. He has been engaged on the construction of the car for about a year and expects that it will prove very speedy.

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GLIDDENITES ALL IN

Entries for the Event Show Eighty Aspirants for the Trip and Trophy.

Under the amended and elaborate system to be put into operation by the tours committee of the American Automobile Association, it is reasonably certain to suppose that an indisputable winner in this year's Glidden contest will be evolved and that there will be no ties. It is almost within reason to conjecture also that no driver will finish the contest with a perfect score; if one does, he will be nothing less than a twentieth century wonder for the checking system that has been devised provides for a loss of points for the loss of a fraction of a minute at the arrival of each checking station by a contestant.

Checkers will be placed at various points along the day's run and will note the hour and minute that each car passes them. The contest rules have been changed to provide for this system of checking, so that each contestant for the Glidden trophy will be penalized at the rate of one point for each minute he is behind the schedule time, and two minutes he is ahead of time at each checking point. To divide the regularity record into four equal portions as nearly as possible, three checkers will be stationed along the route on most of the day's runs. Accordingly, the regularity record will be based on the normal running of the competing cars for about forty-six sections approximating twenty to thirty miles each. The checkers' watches will be compared daily with the chronometers used by the garage officials who have charge of placing the cars in and out at night and morning, so that the exact elapsed time in each checking station will be accurately kept. Thus, the results will show the actual relative positions of the cars with regard to their running to schedule.

One of the features of the run and one that will be hailed with delight by the competitors, will be the marking of the entire course from Buffalo to Bretton Woods, with confetti. Three thousand pounds of the bits of paper have been ordered. The trail will be blazed, or rather "confettied" by Walter C. White, as the named-White driver of the painted-white White runabout will not contest for the trophy. White will carry number thirteen in the run. A Packard patrol car will be sent out first every day to leave the checkers at their stations for that day's run. A special official will be sent over the route ahead of the tourists to perfect the hotel and garage reservations for the committee. Customs and license arrangements are now being made and plans formulated to save participants in the tour from all of the petty annoyances generally met with in a trip across the Canadian border. A very complete guide book for the tour, containing running directions, final revisions of the rules and full information for participants, is being prepared and will be ready for distribution this week.

According to odometer measurement the total actual distance to be traversed in this year's contest from Buffalo to Brettons Woods, is 1134.8 miles. The detail of the itinerary with the exact mileage of the daily runs is as follows:

Thursday, July 12, Buffalo to Auburn, 135 miles; Friday, July 13, Auburn to Utica, 75 miles; Saturday, July 14, Utica to Saratoga, 95 miles; Sunday, July 15, Saratoga; Monday, July 16, Saratoga to Elizabethtown, 94.1 miles; Tuesday, July 17, Elizabethtown to Lake Champlain Hotel, 37.7 miles; Wednesday, July 18, Lake Champlain Hotel to Montreal, 72 miles; Thursday, July 19, Montreal; Friday, July 20, Montreal to Three Rivers, 96.1 miles; Saturday, July 21, Three Rivers to Quebec, 97.9 miles; Sunday, July 22, Quebec; Monday, July 23, Quebec; Tuesday, July 24, Quebec to Jackman, Me., 109 miles; Wednesday, July 25, Jackman to Waterville, Me., 93 miles; Thursday, July 26, Waterville to Rangeley Lake, 105 miles; Friday, July 27, Rangeley Lake; Saturday, July 28, Rangeley to Bretton Woods, 24 miles.

Although the entries closed on Tuesday with six total entries, of whom four will contest for the Glidden trophy, Chairman A. B. Tucker stated that he had received telegraphic information that a dozen or more entries had been mailed, which would bring the total number up to seven. Following is given a complete list of the entries received until Wednesday noon:

No. 1.—N. H. Van Sicklen, Chicago, Ill.; Chicago to Bretton Woods. Will contest for the Glidden Trophy. Apperson car, of 40-45 horsepower. Four or five in party. Chicago Automobile Club.

No. 2.—Arthur Holden, Cleveland, Ohio; Chicago to Bretton Woods. Will contest for the Glidden Trophy. Stearns car of 40-45 horsepower. Four or five in party.

No. 3.—L. J. Petre, Cleveland, Ohio; Chicago to Bretton Woods. Will contest for the Glidden Trophy. Stearns car of 40-45 horsepower. Four or five in party.

No. 4.—Charles J. Glidden, Boston, Mass.; Buffalo to Bretton Woods. Will not contest for Glidden Trophy. Napier car of 24 horsepower. Massachusetts Automobile Club.

No. 5.—J. H. McDuffee, Chicago, Ill.; Chicago to Bretton Woods. Will contest for Glidden Trophy. Stoddard-Dayton car of 30-35 horsepower. Four in party. Chicago Automobile Club.

No. 6.—Charles Y. Knight, Oak Park, Ill.; Chicago to Bretton Woods. Will contest for Glidden Trophy. Silent Knight car of 30-40 horsepower. Four in party, including chauffeur. Illinois State Automobile Association.

No. 7.—George Otis Draper, Hopedale, Mass.; Saratoga to Bretton Woods. Will not contest for Glidden Trophy. Packard car of 24 horsepower. Two in party. Massachusetts Automobile Club.

No. 8.—Ezra E. Kirk, Buffalo, N. Y.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Thomas car of 50 horsepower. Five in party. Buffalo Automobile Club.

No. 9.—George M. Davis, Buffalo, N. Y.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Thomas car of 50 horsepower. Five in party. Buffalo Automobile Club.

No. 10.—C. A. Coey, Chicago, Ill.; Chicago to Bretton Woods. Will contest for Glidden Trophy. Thomas car of 50 horsepower. Four in party. Chicago Automobile Club.

No. 11.—George Soules, Toledo, Ohio; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Pope-Toledo car of 35-40 horsepower. Two in party. American Automobile Association.

No. 12.—Wilbur C. Walker, Hartford, Conn.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Pope-Hartford car of 25 horsepower. Two in party. Automobile Club of Hartford.

No. 13.—Walter C. White, Cleveland, Ohio; Buffalo to Bretton Woods. Will not contest for Glidden Trophy. White car of 18 horsepower. Two in party. Cleveland Automobile Club. Will run as pilot.

No. 14.—Philip S. Flinn, Pittsburg, Pa.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Pierce Arrow car of 32 horsepower. Five in party. Pittsburg Automobile Club.

No. 15.—William E. Wright, Springfield, Mass.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Knox car of 35-40 horsepower. Five in party. Springfield Automobile Club.

No. 16.—Robert B. Crauford, New York City; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Stevens-Duryea car of 50 horsepower. Five in party. Automobile Club of America.

No. 17.—Henry Paulman, Chicago, Ill.; Chicago to Bretton Woods. Will contest for Glidden Trophy. Pierce Great Arrow car of 40-45 horsepower. Five in party. Chicago Automobile Club.

No. 18.—Hart D. Newman, New Orleans, La.; Mich.; Buffalo to Bretton Woods. Will not contest Trophy. Packard car of 24 horsepower. Four in party. New Orleans Automobile Club.

No. 19.—Webb Jay, Chicago, Ill.; Chicago to Bretton Woods. Will contest for Glidden Trophy. White car of 18 horsepower. Four in party. Chicago Automobile Club.

No. 20.—Elbert Milton Wiley, New York City; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Clément-Bayard car of 24-30 horsepower. Five in party. American Automobile Association.

No. 21.—Elwood Haynes, Kokomo, Ind.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Haynes car of 50 horsepower. Five in party. Chicago Automobile Club.

No. 22.—Paul H. Deming, Grosse Pointe Farms, Mich.; Buffalo toBretton Woods. Will not contest for Glidden Trophy. White steamer of 18 horsepower. Two in party. Automobile Club of Detroit. Will be used as committee car.

No. 23.—Joseph A. Mechaley, Stamford, Conn.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Pope-Hartford car of 20-24 horsepower. Four in party. American Automobile Association.

No. 24.—C. W. Kelsey, Tarrytown, N. Y.; Buffalo to Bretton Woods. Maxwell car of 36 horsepower. Will not contest. Five in party. New York Motor Club.

No. 25.—Charles F. Barrett, Hartford, Conn.; Buffalo to Bretton Woods. Columbia car of 24-28 horsepower. Will contest for Glidden Trophy. Five in party. Automobile Club of Hartford.

No. 26.—Frederick J. Pardee, Chicago, Ill.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Packard car of 24 horsepower. Five in party. Chicago Automobile Club.

No. 27.—Percy P. Pierce, Buffalo, N. Y.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Pierce Great Arrow car of 40-45 horsepower. Four in party. Automobile Club of Buffalo.

No. 28.—Archie E. Hughes, Philadelphia, Pa.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Pierce Great Arrow car of 40-45 horsepower. Four in party. Rhode Island Automobile Club.

No. 29.—H. E. Shiland, Jackson, Mich.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Buick car of 30 horsepower. Four in party. American Automobile Association.

No. 30.—W. C. Durant, Jackson, Mich.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Buick car of 22 horsepower. Four in party. American Automobile Association.

No. 31.—Augustus Post, New York City.; Buffalo to Bretton Woods. White car of 18 horsepower. Automobile Club of America.

No. 32.—Benjamin W. Richert, New York City; Buffalo to Bretton Woods. Will not contest for Glidden Trophy. Packard car of 24 horsepower. Three in party. New York Motor Club.

No. 33.—Watson Coleman, Lynn, Mass.; Buffalo to Bretton Woods. Will not contest for Glidden Trophy. White car of 18 horsepower. Four in party. Bay State Automobile Association.

No. 34.—John W. Breyfogle, Rochester, N. Y.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Gearless car of 50 horsepower. Four in party. Rochester Automobile Club.

No. 35.—C. Henry Fosgate, Quincy, Ill.; Chicago to Buffalo. Will not contest for Glidden Trophy. Three in party. Chicago Automobile Club.

No. 36.—W. W. Burke, New York City; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Columbia car of 40-45 horsepower. Four in party. New York Motor Club.

No. 37.—Charles G. Wridgway, New York City; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Peerless car of 30 horsepower. Four in party. Automobile Club of America.

No. 38.—Arthur L. Rich, New York City; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Lozier car of 40 horsepower. Four in party. New York Motor Club.

No. 39.—L. F. Braine, New York City; Buffalo to Bretton Woods. Will not contest for Glidden Trophy. White car of 18 horsepower. Three in party. New York Motor Club.

No. 40.—J. G. Cassatt, Philadelphia, Pa.; Will con-

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test for Glidden Trophy. Four in party. American Automobile Association.

No. 41.—I. C. Kirkham, New York City; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Maxwell car of 16 horsepower. Four in party. American Automobile Association.

No. 42.—Sidney S. Gorham, Chicago; will not contest for Glidden Trophy. Winton car of 30 horsepower. Three in party. Chicago Automobile Club. Will be used as committee car.

No. 43.—Frank H. Peitsch, Chicago; Buffalo to Bretton Woods. Will not contest for Glidden Trophy. Peerless car of 30 horsepower. Two in party. Chicago Automobile Club.

No. 44.—George Watson Beach, Hartford, Conn.; Saratoga to Bretton Woods. Will not contest for Glidden Trophy. Packard car of 28 horsepower. Four in party. Hartford Automobile Club. Will be used as committee car.

No. 45.—Thomas F. Moore, New York City; Buffalo to Bretton Woods. Will contest for Glidden Trophy. English Daimler car of 30 horsepower. Four in party. New York Motor Club.

No. 46.—H. A. Grant, Tarrytown, N. Y.; Buffalo to Bretton Woods. Will not contest for Glidden Trophy. Maxwell car of 10 horsepower. Two in party. American Automobile Association. Will be used as pilot car.

No. 47.—John L. Snow, Boston, Mass.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Peerless car of 30 horsepower. Four in party. Bay State Automobile Association.

No. 48.—James Laughlin (3rd), Cleveland, Ohio; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Cleveland car of 30-35 horsepower. Four in party. Berkshire Automobile Club.

No. 49.—Charles L. Auger, Paterson, N. J.; Saratoga to Bretton Woods. Will not contest for Glidden Trophy. Stevens-Duryea car of 20 horsepower. Automobile Club of America.

No. 50.—Maxwell S. Hart, New Britain, Conn.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Corbin car of 24 horsepower. Three to four in party. New Britain Automobile Club.

No. 51.—Ernest Keeler, Lansing, Mich.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Oldsmobile touring car of 28-30 horsepower. Four in party. American Automobile Association.

No. 42.—R. R. Owen, Lansing, Mich.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Oldsmobile touring car of 28-30 horsepower. Four in party. Cleveland Automobile Club.

No. 53.—Dexter Fairbanks, Chicago, Ill.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Cleveland car of 30-35 horsepower. Four in party. Cleveland Automobile Club.

No. 54.—W. L. Davis, Hartford, Conn.; Buffalo to Bretton Woods. Will contest for Glidden Trophy. Pope-Hartford car of 20-25 horsepower. Four in party. American Automobile Association.

No. 55.—W. A. Danzer, Hagerstown, Md.; Buffalo to Bretton Woods. Will contest for Glidden Tronhy. Crawford car of 24-28 horsepower. Four in party. Hagerstown Automobile Club.

No. 56.—Charles Schmidt, Cleveland, Ohio; Peerless car.

No. 57.—Harrison Wagon Co., Grand Rapids, Mich.

No. 77.—Knox Automobile Co., Springfield, Mass.; Knox wagon. Baggage car. Buffalo to Bretton Woods.

No. 78.—Harry T. Clinton, Lansing, Mich.; Oldsmobile of 32 horsepower. Superintendent's car. Buffalo to Bretton Woods.

No. 79.—Packard Motor Co., Detroit, Mich.; Packard car. Patrol car. Buffalo to Bretton Woods.

No. 80.—Maxwell-Briscoe Motor Co., Tarrytown, N. Y.; Maxwell car of 16 horsepower. Advance car. Buffalo to Bretton Woods.

Trying Some New Tricks.

Chauffeurs who have happened to be held up in that anti-automobile annex to the Windy City known as Evanston, have discovered a new trick. At least, they thought it was for a short time. When the law bid them come to a halt for violating the speed limit they did so and immediately "hiked for the hinterland," deserting the car. Two of them tried it, but one decided that the fine was not quite the same as the price of a new car and had repentant thoughts within less than three hours. He gave himself up, pleaded guilty and escaped less $15. The second acted similarly when he found himself in the same predicament, but he tried to carry the game out entirely by taking the machine away from the police later. He did not succeed,

FOR THE VANDERBILT

Entries for the Elimination Event and the Final Race Still Uncertain.

Although the complete official list of nominations for this year's Vanderbilt cup race, to take place on Long Island, October 6, cannot be had until Chairman Jefferson De Mont Thompson returns from Europe the latter part of this month, some of the nominations already have been received. What is of more importance to Americans is to know the make-up of the American team, or rather the list of cars that will contest for a place on the team, to be decided by the finishing of the first five cars in the elimination race, Saturday, September 22.

Fifteen entries had been received at the office of Chairman Thompson up to July 1, the date of closure, but this number may be augmented by mail entries, although it is doubtful. The nominations are as follows:

Car and H. P.	Entered by	Driver.
Pope-Toledo 120	Col. A. Pope	H. H. Lytle
Matheson, 60	Makers	R. Mongini
B. L. & M., 100	Makers	
Oldsmobile, 110	Gen. G. M. Smith	E. Keeler
Haynes, 50	Makers	F. Sweigert
Christie, 110	W. P. Christie	W. P. Christie
Locomobile, 90	S. S. Davis, Jr.	Joe Tracy
Maxwell, 100	Makers	
Thomas, 115	H. S. Houpt	M. Roberts
Thomas, 115	C. A. Coey	H. Le Blon
Thomas, 115	E. R. Thomas	G. Callois
Frayer-Miller, 110	Oscar S. Lear	E. H. Belden
Frayer-Miller, 110	W. J. Miller	F. E. Moscovics
Frayer-Miller, 110	J. F. Stone	Lee Frayer
Apperson, 80	Makers	G. Robertson

It is yet early to ascertain any of the details of the American cars. Some of them are "still in the works" and the makers are reticent in giving any information until the cars shall have been tested on the road.

According to A. L. Riker, who designed last year's Vanderbilt Locomobile, the Locomobile Company of America has two cars identical in construction, under way in the Bridgeport factory. Only one has been entered, with Joseph Tracy, who finished third in last year's race, for its driver; the other will be kept for an emergency. The machines are rated at 90 horsepower.

The Haynes Automobile Co., whose 50 horsepower stock car, driven by Frank Nutt, finished fourth in last year's elimination and was omitted from the American team, has entered through the Chicago A. C., a 50 horsepower car. Frank Sweigert has been named as driver.

It is evident that the E. R. Thomas Motor Co. is determined to be represented in the race proper, for it has made entry for three cars of 115 horsepower each, through E. R. Thomas, Harry S. Houpt and C. A. Coey. Montague Roberts will drive Mr. Houpt's car, and H. Le Blon and G. Callois, both noted French drivers, have been named, respectively, for Messrs. Coey's and Thomas's machines.

Three 110 horsepower Frayer-Miller cars have been formally named. E. H. Belden will drive Oscar Lear's car; F. E. Muscovics will be up for W. J. Miller, and Designer Lee Frayer for J. F. Stone. Walter Christie has entered and will drive his 110 horsepower Christie, and George Robertson will pilot an 80 horsepower Apperson, nominated by the makers.

There will be but one Pope-Toledo car in this year's trials, Herbert H. Lytle having been named for the 120 horsepower car entered by Col. Albert A. Pope. The Matheson Co. has named Ralph Mongini to pilot its 60 horsepower car and Breese, Lawrence and Moulton, three young society men who are engaged in the pleasant task of building cars as a hobby, have entered a 100 horsepower B. L. M. Little is known about the machine and they have as yet been unable to secure a driver. The six-cylinder Olds, which has been under way for some time, has been entered, General George Moore Smith, being its sponsor. Ernest Keeler will drive in the elimination.

Although only one car, that of 100 horsepower, has been entered by the contest branch of the Maxwell-Briscoe Motor Co., of Tarrytown, N. Y., two cars are claimed to be under process of construction at the factory. One car has an engine with twelve horizontal, opposed cylinders of 6¼ inches bore and 6¼ inches stroke. In this car the cylinders are placed crosswise of the car, arranged six on a side. The second car has eight vertical cylinders, of 5-inch bore and 5-inch stroke, placed in a line fore and aft, or a doubling up of the Maxwell standard four-cylinder car. It is claimed for the twelve-cylinder car that it has the largest piston displacement yet made, and the claim is not likely to be contradicted. Although all the Maxwell cars sold this far employ the horizontal type of engine, the makers have faith in this giant mastadon.

Although all the foreign countries have not been heard from it is expected that when Chairman Thompson returns he will bring with him the formal applications of France, Germany, and possibly England.

Italy already has nominated five cars—three Fiats and two Italas. The Fiats are of 125 horsepower and will be driven by Lancia, Nazzaro and Dr. Weilschlott, while the Italas will be handled by Fabry and Cagno.

A cablegram was received this week stating that formal entries of three Mercedes cars, to represent Germany, had been mailed and the Panhard Company, of France, instructed its New York agent to enter one car, but other than this no particulars were given.

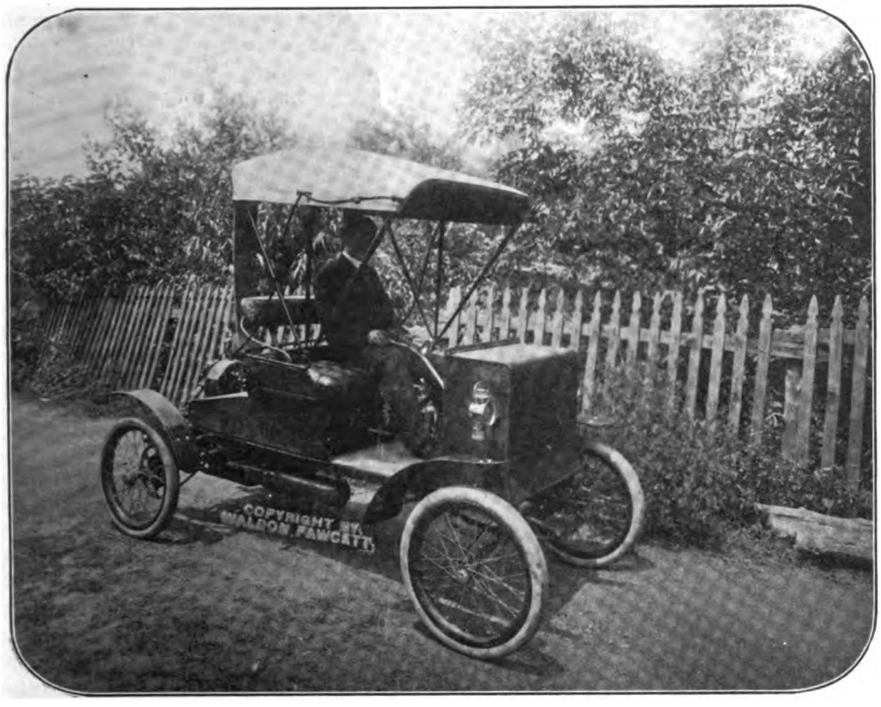
If the first five French cars that finished in the Grand Prix race of a week ago are to represent France, as is expected, that country will send over two Braziers, a Renault, a Panhard and a Clement-Bayard. Baras and Barillier will drive the Brasiers. Szisz, the winner of the Grand Prix, will surely drive the Renault; Albert Clément, the Clément-Bayard, and George Heath, a former Vanderbilt cup winner, will be up for the Panhard. It is very doubtful that England will be represented unless the Napier company sends over a car, as there was some talk of it doing.

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MOTORED MAILS

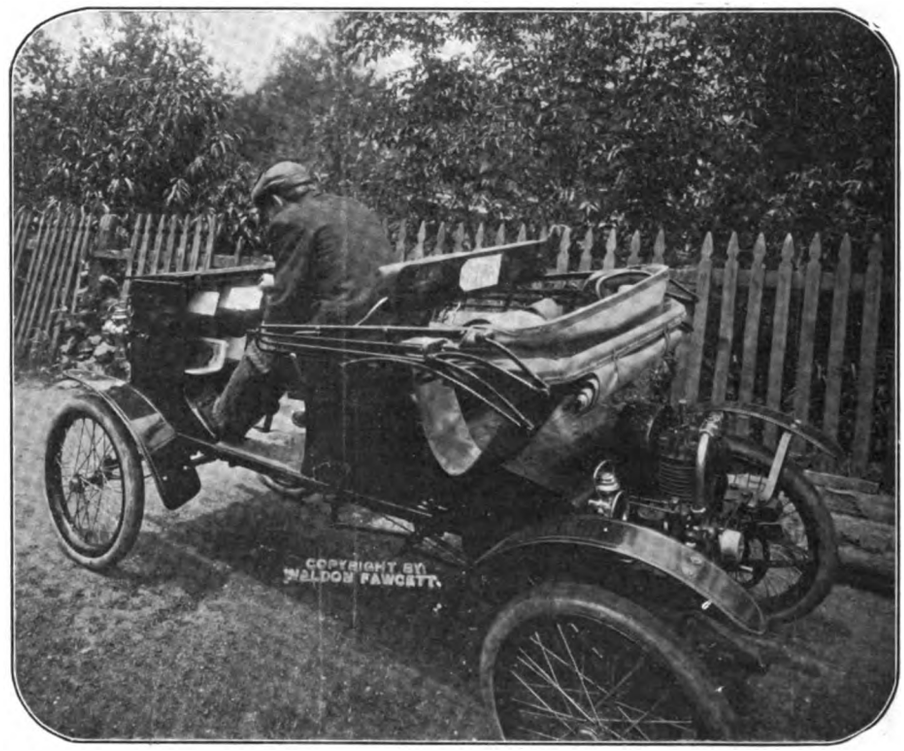
Compact Car Which Should Rush Rural Letters out in Great Shape.

In hope of demonstrating to the department officials that a machine fully up to all the requirements of the Rural Free Delivery service can be supplied at a low price, the Waltham Manufacturing Company, of Waltham, Mass., recently completed and shipped to Washington a machine designed expressly for the work. The car is to be tried out under actual service conditions on various rural mail routes in Virginia and Maryland. The Maryland roads traversed by these routes are good average country turnpikes, but some of those in northern Virginia, which are included in the routes selected as a testing ground, are almost down to the limit of indecency. If the new automobile can stand up under the strains of service in this territory, there can be little doubt that such machines will prove practicable for use wherever mail is distributed by country carriers over fairly good roads.



Insofar as general construction and mechanical details are concerned, the new postal automobile is a regulation Orient Buckboard of the 1906 model, with mackintosh buggy top and friction drive. The weight of the car is 600 pounds and inasmuch as stock cars of this model have repeatedly undergone all kinds of tests, carrying two passengers and bringing the aggregate weight up to 900 pounds or more, its ability to carry a rural postman and any quantity of mail matter that he is likely to be called upon to transport seems beyond question on the part of anyone knowing anything of a motor car's capacity and capability.

On the forward part of the body of the special car there is a compartment divided into a number of large-sized pigeon holes such as are utilized by carriers as receptacles for the various classes of mail. A hinged door closes snugly over this rack or cabinet, protecting the contents from rain or snow, which may be fastened, if desired. The entire design of this mail compartment is, however, tentative, and alterations may be made to conform to the necessities disclosed by actual service in the field under the severe service conditions called for in rural free delivery work which, more than any other, demands reliability.



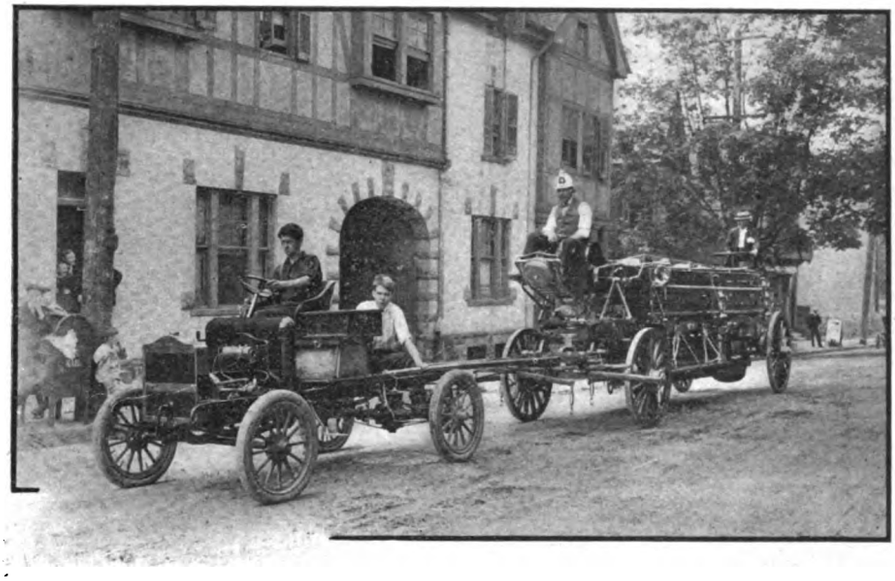
General Sales Manager E. P. Chalfant, of the Waltham Company, accompanied the car to Washington and is co-operating with officials of the department in the conduct of the tests now under way. Arrangements have also been made for a series of similar demonstrations to be made on the same rural mail routes under winter conditions some six months hence. It is in the outcome of these winter tests that the officials of the Postoffice Department feel an especially keen interest. They are willing to concede that the automobile will accomplish all that is expected of it under present conditions but they are anxious to ascertain what will be the result when the roads heavy with snow are encountered, for rural postmen, of course, must maintain a practically unvarying schedule throughout the year.

Insofar as the rural carirers themselves are concerned, they naturally enough are predisposed in favor of the use of mechanical rather than animal traction, especially when the saving, both in time and cost of operation, and general increase in facility are considered. The proposition to place such machines in the hands of the men at $400 also carries weight, since it puts all the advantages of the motor vehicle within their reach at no greater cost than the present requirement of animal equipment makes necessary. Also, considering the great number of carriers in the country who would gladly grasp the opportunity, it is evident that the situation offers most tempting possibilities to the makers of the cars.

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As an Aid to the Fire Engine.

Although the day of the horseless fire engine has not arrived, in the sense of excluding the horse from his prerogative at the fore of the heavy apparatus, yet the use of mechanical traction by fire departments is constantly increasing, and hardly a week passes without recording its application in some new quarter. Not long since, the horses of the Tarrytown, N. Y., fire department got stuck on a steep hill, leaving the all-important hook-and-ladder truck stranded at some distance from the fire. A telephone call was sent to the factory of the Maxwell-Briscoe Motor Car Company, which promptly sent out a runabout. As an auxiliary to the horse power, it proved all that was required, and saved the department from disgrace. In token of the incident, the factory was at once formally annexed to the department, several of the company's officers joined forces with the fire-fighters and now the runabout is always on call to answer alarms. The picture shows it just starting off with the truck which it saved from the hill—this time altogether minus the horses, which do not seem to be missed so very much after all.



All Sorts of Trouble.

Pennsylvania motorists who started out Sunday morning for a run to the seashore, expecting that the new automobile regulations which took effect July 1, would not be enforced to the letter of the law, made a grave mistake. More than 200 arrests were made between Camden and Atlantic City by county constables. Each machine has to chine is registered does not entitle any one cate shown on demand. The fact that a machine is registered noes not entitle any one to drive it except those who are licensed. One effect of these provisions is to get the owner into trouble, even if he has a chauffeur who is licensed. If the chauffeur is not licensed, then both the owner and the driver are liable to fines. This was the case in most instances Sunday. Frequently a car was not licensed. Then the owner was fined. If the chauffeur had failed to register and be licensed he was fined also. In many cases the owners registered their machines, but their drivers failed to obtain licenses. Again some men were found driving cars of greater power and speed than the permits called for. That let the driver in for a fine. Few were fined for exceeding speed limits. It was one of the greatest harvest days southern New Jersey has known in several years.

Air Pump and Acetylene Burners.

Motor cars and elections are coming to have a pretty close relation to one another, especially abroad where they are used very extensively in "stumping" campaigns. When the cars prove to be refractory, however, their ostensible convenience is turned to bitter gaul, as the candidate finds himself stranded several miles from nowhere with his rival booming along ahead of him, and into popular favor. A Frenchman, who attributes his failure at the recent elections to the evil genius which pursued his automobile, has brought action against its makers for $2,000 damages, which balm is supposed to be sufficient to soothe his wounded feelings and compensate for his loss.

Part of Modern Election Machinery.

When the burners of acetylene lamps begin to clog, the best method of freeing them is to apply the tire pump from the feeding side, blowing out all impurities by compressed air. In case the clogging particles prove to be particularly refractory, the burners may be immersed in a very weak solution of muriatic acid and left for an hour or so, after which they should be removed and cleansed with water to which has been added a small amount of soda which will neutralize the acid and prevent any trouble from its use.

Eighty Per Cent. Finished.

Los Angeles, Cal., July 3.—Eighty-one of the one hundred and one cars that started in the second annual endurance run of the Southern California Automobile Dealers' Association, finished here Saturday night and the awards were made public to-day. A Pope-Toledo car driven by Thomas Pillow, won the cup for cars costing above $2,500, and a Dolson car captured the trophy for machines listing between $1,500 and $2,500. The cup for cars costing less than $1,500 and for the best all around score was given a Tourist. A Buick won the runabout class cup and a Frayer-Miller finished the two-days' run with the least expense, thereby winning the economy cup.

More than a hundred cars started from Los Angeles on Friday last, making the journey to Riverside, the end of the first day's run, via Azuza, Pomona, San Bernardino and Realand. The return trip from Riverside took the contestants through Corona, Santa Clara, La Habre, and thence into Los Angeles.

Heretofore in California endurance runs, tire troubles have been a source of never-ending trouble to the drivers, and cars that otherwise would have finished with perfect mechanical scores, lost points on account of punctures. This year the committee did not take into account tire troubles, in basing the awards, but separate reports were made of tire worries. In Friday's and Saturday's runs several of the medium priced cars were eliminated by broken axles, steering knuckles and springs.

Will Virginia Copy Frelinghuysen, too?

Virginia may, at some future time, be a good touring ground. Julian Wilson, Commissioner of Highways in that State, has been making a tour of the Eastern States, gathering information to be used in a good roads crusade Virginia is about to inaugurate. The Southerner was much impressed with New Jersey's highways and declared that New Jersey rightfully deserves the reputation of being the first State in the nation in the building of improved roads, but expressed the hope that Virginia would be able to give it a call for the honor at no far distant date. Mr. Wilson will return to New Jersey soon as the guest of State Road Commissioner Hutchinson and State Road Supervisor Meeker, to make a thorough study of road building in vogue in the Mosquito State for application in Virginia.

Fell in a Hole and Sues.

William E. Durr, a Milwaukee motorist, has brought suit in the Milwaukee courts against the town of Raymond to recover $1646 for damages, alleged to have been sustained by him and his machine in June, 1905. Durr claims that while driving over a bridge at night his car ran into a hole which was not danger-signalled, and the damage amounts to the sum asked for.

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MYSTIFYING MIXTURES

Some of the Queer Things the Carburetter has done for one Amateur.

"Nothing about a car mystyfies me quite so much as the carburetter," said a motorist who, for the purposes of this tale of woe, may as well be dubbed the Amateur. Although he is an experienced hand at the wheel, the title fits him well. "I have never been able to pride myself on being able to keep a car on the road through thick and thin—that is, not for very long. There have frequently been spells when life was such a long round of satisfaction in running the car that I felt equal to anything and everything that could possibly crop up. In short, I felt myself the master of my car and any old car for that matter. And that's a thing that is puzzling. I have always done the good samaritan act and whenever I saw a fellow on the roadside in distress I have gone to his aid.

"My nerve has supported my limited knowledge to such good purpose that many a man owes me a debt of gratitude for saving him from further toil or the possible ignomy of a tow to the nearest garage. Those people probably look upon me as a wizard in the automobile 'expert' line. Quote that word when you write it, for it is so overdone as to be meaningless. But when yours truly finds himself up against it, miles away from home, no one ever materializes to lend me a hand or put a new head to looking for the trouble, for it's perfectly amazing how a man will overlook a a perfectly obvious cause of breakdown for half an hour or more, and the first driver that comes to his aid will see it at a glance. That's my long suit—detecting something that the poor stalled one has been blind to.

"But to get back to my proud spells; they have so frequently been followed by the proverbial fall that is said to lurk in the shadow of pride that I have come to the conclusion that happiness is a thing that is only doled out to us mortals in small doses, and whoever holds the bag is like our mothers were when we were kids—everlastingly afraid that we will get too much. For that reason I have come to the conclusion that I do not know anything like as much as I think I do, and whenever I am inclined to have one of those proud spells because my best girl is on the seat beside me and the car is gliding along with the very poetry of motion through delightful scenery, I think to myself 'keep your foot on the brake.' Because you simply never can tell how near the hour of reckoning may be.

"And of all things that have bothered me the carburetter has been the source of greatest trouble. It used to make me so hot all over to think that the fool thing could stump me when I knew all about the theory and practice of carburettion from A to Z, but some of the experiences I have had with it since have rather changed my opinion of my vast store of knowledge on the subject. I have been willing at times to swear that the thing was not a mechanical device at all but something bewitched and subject to contrary spells. Yes, I know that some people develop 'bugs' on a certain matter concerning the car and can never think that anything else is wrong except their particular hobby, which may be one thing or another. I have fallen a victim to the carburetter habit at times, finally discovering that something else was at fault, but I have tried to guard against the habit of putting everything down to it and think if I stick at the game long enough I will at some time or other reach a stage where I can diagnose almost any trouble correctly without having to first rip everything apart promiscously.

"I must confess that much of my preliminary work came from sources other than the car itself—I did not have a car to practice on then, but I had the automobile fever pretty badly and I devoured text books, good, bad and indifferent, subscribed to all the motoring papers and read technical articles galore, besides absorbing every one of those thousand and one 'do's and don'ts' and how to fix this and adjust the other that they fill up odd corners of the papers with. Of course, I learned more in the first month that I drove the car than from all my reading put together, but come to think of it, the latter laid the foundation and I would not have caught on half so quickly if I hadn't gone through that preliminary process of cramming. My chief trouble was trying to make a particular set of symptoms fit one of the set of diagnoses that I had familiarized myself with in the books. It was no go, of course.

"Funny, how you never can seem to find a case that is exactly in point," he soliloquized. "The symptoms never seemed to tally exactly with those given in the books for certain kinds of trouble, and once your mind begins to wander a bit you can imagine more things in a given space of time than are contained in all the books put together. Somehow or other, the carburetter became my pet specialty and I had a head full of theory of correct mixture and economy of fuel and the like. I will own up to having the carburetter habit pretty badly at first and no matter what happened to be at fault I seemed to begin and end my search for trouble there with frequent excursions to it in the meantime. Probably the worst experience I ever had was with a borrowed machine and the friend that loaned it to me put me off the track by telling me before I started that he had never had any trouble with it except with the carburetter.

"If it had not been for that I might have been saved considerable trouble. And then you must admit that the symptoms were very misleading. It was a Sunday trip and we got across the ferry into Jersey before anything serious occurred, although the machine was a little erratic right from the start. It would run alright for a little while, then the explosions would appear to become very weak and maybe two or sometimes three out of the four cylinders would fire spasmodically, not making more than one or two explosions in ten. This kept the muffler so full of unexploded charges that the car went along like a gatling gun with fire streaming out behind. It jars me to attract a curious crowd and I would rather the car come to a full stop than act that way.

"The trouble began in real earnest once we left the ferry house on the other side, and before we got half way up the hill the chances for having an enjoyable day's outing looked slim indeed. The firing became so weak and irregular that it was a case of take out the clutch and stop two or three times in a block, and the maddening thing about it was that the engine would immediately speed up and run in good shape the moment the load was taken off. But that kind of coaxing was a waste of time, for no matter how well she ran with the car standing still, the engine reverted to its old tactics the moment we attempted to make a start. Improper mixture was my first thought, because I knew the batteries were fresh, the spark plugs were brand new and the commutator was clean. Of that I satisfied myself before proceeding any further. Then I got to work at the carburetter and after several minutes' fussing would get her turning over in good shape—not due in the slightest to my efforts, however, as I afterward found out to be the case. We would run probably half a mile, sometimes less than that, and with thoughts that were far from according with the day I would descend and begin all over again. I usually managed to get her started well about half a mile or so before a railway crossing and we would be held up by a passing train just as we were going finely. That meant a new start every time.

"Once in desperation I audibly threatened to tear the carburetter down and rip it off the machine bodily if better results were not forthcoming, and it was just as if the threat had been heeded for we ran almost two miles on the next lap. Then I did take the carburetter down; without the slightest result, of course. There was plenty of gasolene; the float worked all right, neither the nozzle nor any of the passages were stopped so I put it back again. Quite by acident I happened to notice that the gauge glass of the reservoir on the sight feed oiler showed a void clear down to the bottom, whereas it had been filled hardly two hours before. The quantity it holds is good for two or three hundred miles, so here seemed to be a definite clue. I followed it up by taking it off one of the hand hole covers on the crankcase and my worst fears were confirmed; it was simply flooded with oil—the big ends of the connecting rods were out of sight in it.

"There must have been the normal quan-

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tity on hand when we started, and the entire contents of the sight feed oiler had been dumped into it much the same as if you had taken a two quart can of oil and emptied it in there. Fortunately the tool box contained an empay oil can and we drained off the surplus into it and refilled the oiler after having shut off all the feeds. Then I took out the spark plugs and two of them showed the nature of the trouble at a glance for they were simply dripping with oil and one had a great gob of it right across the points. The engine started without any trouble and ran beautifully; after the first mile there wasn't a miss and we had a good chance to make up for lost time. I ran her five or six miles without turning on any oil at all and every mile she seemed to go better. Then we made a halt by the wayside and I adjusted the sight feeds properly and we had no more trouble that day. The funny part of it is that during the hour or two that I was fussing around trying to find the trouble, I had adjusted the carburetter a hundred and one different times; taken it apart and put it together again and when we did finally start off in good shape after having located the cause of all the annoyance I never took the trouble to see whether the carburetter was set for the best mixture or not. And I've had a similar experience so many times that I think an engine will run on almost any old mixture that is within striking distance of containing the proper proportions of gasolene and air. This is only one of my 'carburetter hunts' as I have come to call them. I have had several since then—long drawn out sieges, too, that ended up by finding something totally foreign. But they are long stories and I'll tell you them some other time."

Peddlers are the Worst.

About the meanest proposition a touring automobilist encounters is the traveling peddler. He invariably refuses to give an inch of way and is apt to be insolent. As a rule farmers and pleasure drivers are courteous, the motorphobe of this class being being confined generally to the comic papers. The peddler is, however, from either stupidity or stubbornness, or both, wholly without regard of road etiquette and frequently is a source of danger. One of this ilk met with his just deserts last week. He had intentionally blocked a touring car for several miles, but the machine finally managed to get by. As the car passed, one of the occupants who also is a member of the Society for the Prevention of Cruelty to Animals noticed that the beast drawing the heavy load was covered with sores. The automobilists stopped at the next town, lodged a complaint of cruelty against the man, and he was made to lodge the weary beast with a veterinary. The charge was not made from a spirit of revenge, but the peddler evidently believed so, judging from his scathing remarks anent "bloated aristocrats" in general.

"STEERING SMALL"

Something which comes to Cyclists and Yachtsmen but others must Learn.

Between these extremes of good and bad there are, of course, all shades of awkwardness and aptitude at the first few sessions at handling a car on the part of a beginner. And some are of a degree of badness that makes the business of inculcating the rudiments of steering a risky task if attempted to be carried out in a city street, even where there is little or no traffic. The first thing noticeable about the varying degrees of proficiency exhibited by a batch of pupils is the ease and rapidity with which the old hand at bicycle riding takes to the steering wheel of the car. Next to him comes the hand that has become experienced in guiding a small boat, whether of the sail or power type. It is simply because both have learned the lesson of "steering small." And not alone this, for they have also gained a knowledge of the fact, usually from experience, that steering is a factor that varies with the speed and it is something of which a knowledge is apt to be brought home sharply to the man who disregards it. In just what ratio the acceleration of the car's speed affects the amount of turn that must be given the steering wheel in order to round a curve of given radius has probably never been calculated. It is entirely a matter of experience with each driver and undoubtedly it is an item that has contributed largely to the various plunges through the fence that have occurred at various tracks, for when hugging the enclosure railing closely there is no time to correct an error of judgment of this kind. A bit too far and the trick is done; the car is travelling so fast that but a fraction of the twist that it would be necessary to give the steering wheel under normal conditions suffices.

Besides representing just that small amount of twist that it is necessary to give the steering wheel in order to change the car's course sufficiently to clear an obstacle or round a curve, "steering small" also consists in not anticipating the event overmuch. This is likewise a fault of the beginner and when performed in attempting to round a street corner usually results in cutting across lots on the curb which is detrimental to the tires and the car as a whole. Next to this comes too short a turn and that is likewise bad for the tires, especially if made at anything but a very low speed. Anticipating the turn that the car is to make by twisting the steering wheel before reaching it invariably leads to trouble and this is something that confuses the beginner mightily; he finds it one of the most difficult things to learn next to acquiring that degree of moderation in turning the wheel that is represented by "steering small." It is hard for him to gauge exactly the proper point at which the turning should begin and the most usual fault consists in making this too soon. It will be noticed that the proper manipulation of the wheel that gives the car that broad easy sweep around a corner is unaccompanied by even the slightest superfluous movement of the hand. The wheel is not moved until the proper point at which the turn is to be made has been reached and it will be generally agreed that this is the opening of the curve itself. So immediate is the response of the front wheels to the steering gear that the operation of rounding a corner, whether long or short, may best be termed a progressive one. The front wheels are not set for the curve and the car then sent at it, as appears to be the prevailing impression with many a novice. Their position with relation to the remainder of the car must be adjusted progressively as the car proceeds over every foot of the curve and observation of cars in the course of turning corners will reveal that the driver's hand is busy every moment of the time; in its graceful sweep the car is responsive to the slight twisting of the wheel during every foot of its progress and instantly straightens out again once the wheel is returned to its normal running position. Except on the short turns occasioned by rounding the corners of city streets and dodging miscellaneous traffic at the sime time, the amount of motion imparted to the wheel by the driver's hand is all but imperceptible, so slowly and so gradually is it done. This "steering small" and not anticipating a turn practically constitute the whole are of the purely running part of driving.

Not a Railroad Accident.

Puff, puff, puff, puff!

A thin column of smoke arose.

Puff!

Could he make it in safety?

Puff, puff, puff!

It was getting nearer and—puff, puff—nearer.

Puff!

He would try it if he lost his life in the attempt.

Puff, puff, puff!

Ah! Another box gone. Now he only needed 500,000 more coupons. Every cigarette was bringing that 675,000-coupon runabout just that much nearer.

Puff, puff, puff, cough, puff!

Take a Dowel Pin Along.

Motorists who are anxious to be able to determine just how much fuel is contained in the tank at any time, yet do not care to invest in a "boughten" gauge of elaborate and eccentric nature, may find complete satisfaction by carrying a bit of dowel pin on top of the tank at all times. It should be graduated to inches, and shellaced to prevent its carrying dirt or splinters into the liquid.

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GYROSCOPICAL EFFECT

That and not Centrifugal Force is to Blame for Many Racing Accidents.

When traveling on a high power motor car, if the driver incautiously takes a bend of the road at too great a speed, the car is likely to overturn, or the wheels collapse under the tremendous strain or (in the case of a racing car having a low center of gravity) the car is forced violently outwards against any obstacle, in spite of the efforts of the driver to keep an inside course, the result being a bad smash-up.

In view of the many bad accidents which have happened, drivers of new or untried cars should be particularly careful in the forthcoming Vanderbilt cup race, because there are some ugly corners on the course; consequently, competitors who mean business will have to run great risk, owing to the fact that the excessive side-strain cannot be calculated or controlled by the steering wheel.

What I wish to call particular attention to is that these lamentable occurrences are generally supposed to be caused by the centrifugal force, which is created by taking the curve at too high a speed. I admit that to a great extent this is so, but the following experiment will prove that the gyroscopic action set up in the road wheels and in the engine fly wheels must seriously affect the steering of fast cars.

Take a spare wheel, preferably a light runabout wheel, and having grasped the axle firmly with both hands, get a friend to spin the wheel as rapidly as possible by striking the spokes; or, should an engine be available, place the tire against the fly wheel, and when the runabout wheel is revolving at a high speed, it will be noticed, firstly, that the wheel can be moved easily in a straight line, as if fixed to a motor-vehicle traveling on a straight course; secondly, bodily translation of the axis parallel to itself produces no gyroscopic effect, but any other movement is powerfully resisted (other than in its plane of revolution). This resistance increases in proportion to the speed, diameter of wheels, rate of revolution and sharpness of curvature.

The numerical value of these gyroscopic effects under such varying conditions could only be ascertained by experiment; and even then allowance would have to be made for centrifugal force and non-synchronous action of the engine, which sometimes occur at certain critical speeds.

Seeking an explanation from an engineer who is credited with being an expert in mathematical analysis, I found how this little subject is understood.

He said: "In the case of a motor vehicle turning a corner, the steering wheels have already been diverted from their original plane of motion before this gyroscopic action takes place." Let me point out that it is the very act of diverting the wheels from the original plane of motion which produces the action to which I have called attention.

In turning a corner the gyratory action generated in the four road wheels and in the fly wheel of the engine has to be counteracted, thus putting a strain upon the road wheels and the steering gear quite separate and distinct from, and additional to, those effects caused by centrifugal force.

One remarkable peculiarity of this gyroscopic action is that it has no tendency to upset the car, as is the case when centrifugal force comes into action and excessive speed round a sharp curve, or from a bad steering. On the other hand, it tends to keep the car, as one might say, straight on the road. An excellent example of this action is seen in the Whitehead torpedo, which is fitted with a gyroscope to compel the vessel to continue in a straight course through the water.

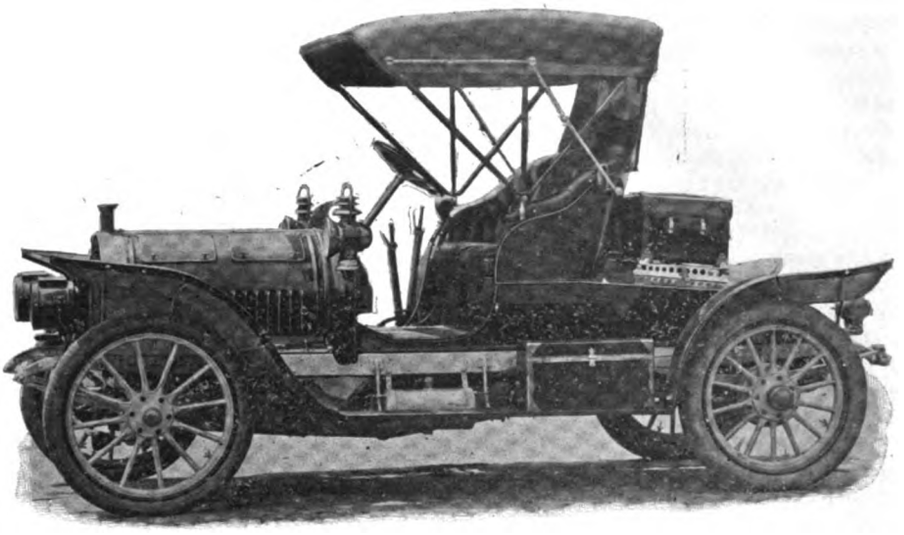
An express train, traveling at high speed, has the same tendency to continue running in a straight line; but it has this advantage over a motor steered by hand, that it is compelled to follow any curve, because it is guided by the rails; but even with this additional security, engine drivers know there is danger of derailing, and generally slow down when nearing a curve.

The fly wheel of the gasolene motor being usually heavier than the road wheels, and the speed very great, this gyratory force is much more evident in the fly wheel and other revolving parts of the engine than it is in the road wheels. It is the position of the engine on the car to which I attribute this gyratory disturbing effect upon the steering.

Speaking purely from a racing point of view, I believe that it would be safer if the engine was placed in the center of the car, where there is the least turning movement, with the cylinder fixed horizontally and the axle vertically. This would allow the car to turn in any direction without altering the plane of revolution in the fly wheel. The diameter of the road wheels is an important matter, because increasing the diameter of the wheels unnecessarily exaggerates the defects which I have pointed out. I admit that any radical alteration in the position of the engine, etc., presents serious difficulty, but I am of the opinion that some alteration is urgently needed in insure the safety of fast racing cars. Any structural alterations which will reduce this tendency would at the same time greatly increase the durability of the cars, especially in regard to the tires.

Taking Your Trunk Along.

The accompanying illustration shows how the Royal Motor Car Co., Cleveland, Ohio, have solved the problem for their standard runabout, and that without loss of the beauty lines of the body itself, or permanent interference with its regular form. The extra luggage equipment, consists of a light metallic rack which is affixed to the deck just behind the seat, furnishing an even and strong bed for a small steamer trunk which can be strapped in place, yet is easily removable. Its location well within the wheel base prevents it from interfering with the balance of the body, and its appearance in no way encumbers the machine, while when not wanted, not simply the trunk, but the rack as well, may be removed leaving a clear deck. The machine depicted is of the regular runabout type, and with its 40 horsepower engine and capacious top, forms one of the most satisfactory touring runabouts on the market.



What the Doctor Won.

The "schnelligkeitspreis" was what Dr. Stoess won by piloting his 20 horsepower car in first in the Herkomer Tour. There would seem to be enough of it to satisfy even the most exacting, provided, of course, that you are not called upon to tell all of your friends what the thing is, otherwise life would be too short and the glory too dearly bought.

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THREE KINDS ONLY

"City," "Semi-Touring" and "Touring" the French Idea of Car Classification.

Aside from the broad classification of all motor vehicles according to their intended use as pleasure or commercial types, and the somewhat vague subdivision of the former class into runabouts and touring cars, a definite segregation of all types into groups according to the service for which each is essentially fit, remains to be popularized. Nevertheless, in France, is to be seen a wavering commencement of such a classification, in the three types now known there under the general terms, "voiture de ville," "demi-route" and "voitoure de route"—the touring car of our own parlance. With especial regard to the first of the three, but illustrating the manner in which such a classification might profitably be made, an article from the pen of Count Mortimer-Megret, translated from La France Automobile, deals with the type of town car which has made its appearance there for the first time this year as a class by itself.

"The last Salon marked the birth of a new vehicle—the town car, he says. It is a product brought forth by the good sense of its builders, and bred of a combination of logic and progress. There should be as little actual resemblance between the town car and its sturdy companion of the touring type, as there is between the frisky hunter and the heavy cart horse. They respond to totally different needs, they each possess qualifications excellent in the one case, but faulty in the other.

"The way was led at the beginning of the year by five of our leading makers and one foreign; C. G. V., Delauney-Belleville, De Dietrich, Hotchkiss, Renault and Germain, have each produced a chassis of this type having not simply a special arrangement of parts, but special parts, as well. And it would be desirable if their example were to be followed by others, which would be perfectly practicable now that the considerable progress in mechanical construction has rendered the motor flexible to the point of permitting its utilization within very elastic working limits of convenience and power.

"Different needs and different qualities, I have said, let us consider for a moment the nature of these differences. Three basic elements should characterize the town car above all, namely: flexibility, easy control, and comfort. All three of these, besides holding independently, are united by inseparable ties.

"Flexibility should be assured by a motor possessing sufficient power to propel, at a speed ratio nearly always constant a load relatively high. Fourteen to fifteen horsepower seems a minimum, twenty horsepower a maximum. As a matter of fact, these are the extreme limits between which the makers I have already indicated have powered their town cars. The carburetter should receive the designer's entire attentions in view of the rapid acceleration on the simple raising of the pedal. The spark, by magneto and plugs, facilitating the adoption of double ignition, should be preferable so that good power could be realized for starting, and so that starting from the seat by means of the switch could be done without the necessity of having recourse to a supplementary self-starting gear. Otherwise, something of this sort should be provided. The motor should be compact externally and very short, to give the greatest amount of room possible to the body, without falling into the error of extended wheel base, rendering manoeuvring difficult.

"Two of the makers cited, namely, Renault and C. G. V., have solved this portion of the problem by casting their cylinders in a single piece. The motor by this means is shortened and the length of hood reduced. Another feature entirely possible with this class of cars, is the placing of the motor beneath the seat. The eye having become accustomed to the imitation of horse-drawn types of vehicle in machines without horses, their lines may now be imitated without fear of giving offense, and indeed, the most successful electrics affecting this style now traverse the streets of Paris without attracting the least attention. Moreover, this position presents only a maximum of inconvenience, the failure of the motor on the road having become extremely rare.

"The clutch should respond quickly, to permit rapid starting after traffic blockades, and instantaneous acceleration after running slowly. As to the transmission, three speeds are sufficient ordinarily, and it seems to me even, than for the essentially town car, two speeds should suffice, the one for starting and running through congested streets, and the other for all ordinary running. Cardan drive for the chassis seems to me to be superior to the chain system for the reason that the difference in attention required, and the almost entire absence of shocks on the rear axle, makes the cardan perfectly applicable, and further, because the disposition of the side sprockets of the chain drive would tend to interfere with the placing of the side entrance. Indeed, several of the houses which I have mentioned, which for their road cars, remain devoted adherents to the chain principle, have resolved to adopt the cardan system for this newer special type

"Wheels should be of very small diameter for the moderate pace will not overwork the tires, and the small dimensions will permit of a sensible lowering of the body, facilitating entrance from the curb without having recourse to the step. It is essential that the side entrance should be of liberal proportions, since it is destined to admit the most delicate finery. And, finally, the wheel base should be short, the tread wide, and the steering lock, by this very fact, well extended. This permits a facility in turning which is made absolutely necessary by the use of the car in narrow streets, and in taking right angled turns in the streets, which should be readily possible without having recourse to the reverse—which, in congested thoroughfares is not exempt from danger.

"These, then, are the qualities requisite in the production of a special type of chassis adapted essentially to city work. As will be seen, they are totally different from those which distinguish the road car, and are equally important with those characteristics which mark that type. There can be no doubt that for such constructors as devote their attention to the work of producing such a type of car, there will be ample reward in the large number of sales which will greet its appearance on the market."

Nickel Steel for Valves.

Some makers believe in the use of a high-percentage nickel steel for valves. And it is now generally conceded that an alloy containing 25 per cent. nickel has a remarkable resistance to the action of corrosive vapors, and, further, has a very low coefficient of expansion when heated, says the Industrial Motor Review. The inlet and exhaust valves of the internal combustion motor require just these qualities and a steel of the composition mentioned is now supplied for this purpose. It is necessary to re-heat the steel, after forging, to a full red heat, and cool it off in air or ashes in order to render the forgings easily machinable. This removes hammer hardening, and no subsequent treatment will affect the properties of the metal. For example, the alloy cannot be hardened at all by heating to a full red and dipping in water.

Where the Water is.

A company has just been formed in Sydney, Australia, to handle the patent rights of an invention which it is alleged is about to supplant all present forms of change-speed transmission gearing, replacing it with some form of hydraulic piston gear of simple design. Hydraulic clutches are by no means new on paper, but their handling by $50,000 companies seems to argue strongly for somebody's faith in this particular type as being at least reasonably successful.

Preventing Lenses from Cracking.

A foreign expert recommends for headlights which manifest a tendency to crack their lenses when being heated, that a thin film of sheet mica be cemented on the back side of the glass, Canada balsam being used for the purpose, which, being a poor conductor of heat, will protect the fragile glass, while being reasonably transparent, it will not interfere with the refraction of the lense.

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HANDLING STEEL

How the Expert Goes About Producing the Particular Kind he Needs.

The rapid progress of tool steel manufacture, and particularly the advent of high-speed steel, makes it more and more necessary for the successful toolsmith to devote some of his spare time to the careful study of the nature and adaptability of new steels with special reference to their use in tool-making, says Machinery. For, unlike the air-hardening steels of a few years ago, the high-speed steels of to-day can be used in innumerable ways for making tools which formerly were made only of carbon steel. The ease with which high-speed steel may be forged, shaped and hardened, permits its use in the construction of many tools and dies. Hence, we not only find in it use in the machine shop for cutting tools, but in the press room for the construction of forming dies; also for wire-forming dies, and in the bolt mill heading dies on hit work. It is used for shearing dies for hot or cold bar work and for various other purposes unthought of in connection with air-hardening steel. But unfortunately, owing to the number of different makes of alloy steel now in use, no standard rule can be adopted for manipulation. Therefore, in order to determine the proper forging and hardening heats, it must be a matter of experiment for the toolsmith, and he will find it a very good method to test the particular brand he is about to use by giving a piece of it as much heat as he thinks the steel can properly stand, and noting the result.

The writer has found that a majority of the high-speed alloy steels should be heated whenever possible in block fire with a good body of forge coke. Thoroughly heat the steel in a clean bright fire to a full yellow plastic heat, which means a temperature of 1650 to 1850 degrees F. This, of course, is a much higher temperature than can safely be used in forging air-hardening or carbon steel. In fact, the heat treatment given alloy steels of the high-speed variety is so diametrically opposite to the generally accepted practice of working carbon steel that it seems to be a difficult matter to persuade the average smith to raise the heat to the proper temperature when working high-speed steels, but when this fact is once impressed he will be surprised at the ease with which it can be worked. By rapid forging and repeated and thorough heating, it will be found no difficult matter to give alloy steel almost any desired shape, but, unlike carbon steels, it will not do to run the heat down low in forging, as in such practice the steel will most likely be found cracked or split.

To heat thoroughly and often is the essential point to remember. After forging alloy steel for lathe, planer, and shaper tools, it is, of course, unnecessary to anneal them other than to let them cool down in the air in a dry place. When cold, rough grind to proper edge, and then they are ready for hardening. In making use of alloy steel for taps, reamers, twist drills, milling cutters, or forming dies, such as are largely employed in automobile engine work, it will be necessary to anneal the forgings in order to enable them to be worked in the machine shop. The different sizes and shapes of this steel can generally be procured already annealed from the steelmaker, but when unable to obtain the annealed bar, and the work is required to be annealed, proceed in the following manner:

A very successful method of annealing high-speed steel, and also self-hardening steel, consists of placing the tool in a wrought-iron or cast-iron tube, having space large enough in circumference and length to accommodate the work, and plenty of packing material. One end of the tube can be threaded for a cast-iron cap, which can be screwed on and off as desired; the other end can be permanently fixed on the tube, as it is generally only necessary to use the one end. Have a number of 1/8-inch holes drilled in the tube, and also a few 3/16-inch holes in the end caps. The idea of the holes in the tube is to act as a vent, and let off the gas which is generated from the packing material heating. The end holes can be used for a number of test wires which can be withdrawn as the heating progresses, and by this means the operator will be able to ascertain the proper heat desired, which should be a bright orange or a trifle higher, according to the nature of the steel. When the desired heat is reached, regulate the blast sufficiently to hold the muffle and its contents at this heat for a period long enough to allow the heat to thoroughly penetrate the steel. Then the muffle, with its contents, may be buried in dry slaked lime, or sawdust and ashes, and allowed to cool down slowly. If a furnace is used for the heating, allow the muffle to stay in until furnace and all cools down, when the steel will be found quite easy to work in the machine. I would say, though, respecting this "dead heating" in the furnace, that, unless the steel is properly packed in the muffle in order to exclude the oxygen blown into the furnace by the blast, the steel is apt to oxidize and the carbon content thereby become lowered, resulting in over-annealed steel. The packing material used may be any one of several kinds now commonly used for other work, but charred leather gives the best results, and dry, fine smith coal of a good, clean quality is effective.

It is now ready for the machinist to finish to the desired shape. This he will find will be facilitated by using for a cutting tool a piece of the same steel, hardened. After he has accomplished his part of the work, it is then necessary to have the work hardened, which can be done in numerous ways, according to the requirements desired for the tool. For turning and cutting tools for lathe, planer, shaper, and slotter, it will be found a good practice to heat the nose of the tool slowly to a bright red, then bring it rapidly with a good, quick fire to a white fusing heat, about 2200 degrees F., at the point, then quench it quickly in oil, and leave until it is cold. It must be borne in mind, however, that when a tool is at this high fusing heat it must not come in contact with the fuel of the fire, as, should that occur, the nose of the tool would be ruined, and necessitate considerable grinding or re-forging into shape. After re-grinding the tool on a wet stone, it will be ready for work.

The oil used may depend on how hard the tool is desired. We will suppose it is required dead hard on the cutting edges; this is as hard as it is possible to make it for machine-shop use and still retain sufficient toughness. To obtain this result, after fusing the point or cutting the edge, quench quickly in thin lard oil, or, for extreme hardness, quench the tool in kerosene oil, when about the limit of hardness in this steel may be obtained. In using oils, especially the kerosene, great care should be used, or the oil may flame and burn the operator. The oil tanks used for hardening should be constructed preferably of galvanized iron, fitted with close-fitting covers, and provided with a screen a few inches from the bottom, on which to rest the work, in order to facilitate the quenching by allowing free circulation of the quenching bath's contents to all parts of the tool. In hardening machine-finished work, such as dies, milling cutters, taps, etc., made from this steel, we must proceed differently, as the course described would not answer for all purposes. All machine-finished work should be packed in muffles or iron boxes described in annealing, bringing the heat up in a similar manner, testing as also described. When heated sufficiently, remove the cover of the muffle, and quench the tool in a bath of oil, composed of half parts each of thin lard and raw linseed oils, keeping the tool in motion while in the bath, until it has cooled to a little below the boiling point of the oil. Then it can be removed from the bath and left to cool in a warm, dry place, after which the temper may be drawn to a dark straw for general purposes.

In all instances the operator must exercise his best judgment in heating and quenching the tool, according to its shape and the nature of the service required of it, but care must be exercised in selecting the steel when making tools of the high-speed steels to avoid getting a bar which amy be "piped," or which contains "laps" or "cold shuts" formed in the ingot from bad teeming, or caused during the tilting. The density of its structure and the tendency of the alloys to segregate in the ingot makes it a difficult steel to manufacture of a sound and uniform quality. High-speed steel of high-grade quality is, therefore, necessarily high priced, but when the efficiency of its service is considered, it is acknowledged the superior to high-carbon steel for every purpose where it can be used.

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PUBLIC INSTRUCTORS

The Car Usually a Safer Teacher than the Newspaper Writers.

In its guise as a popular instructor upon scientific matters, the motor car is fulfilling an important and useful roll. For it is safe to say that through its acquaintance, hundreds of users are learning lessons of practical mechanics and homely manual dexterity, both with the mechanism and with the mechanics' tools, which otherwise would be ignored and despised. In a broader way, through the avenues of the class journals, lessons of a far more extensive nature are being taught under cover of the information essential to the proper understanding of the car's operation. Thus, the laws of heat in its action and its conversion into mechanical work, are being elucidated, with more or les distinctness; the intricacies of applied mechanics are being unfolded in elementary form, and the mysteries of electricity are being unraveled with commendable, if sometimes misguided, persistancy. In this way the effect of automobilism upon the public at large is more extended than its simply utility and induced benefits alone could be.

But when the information is loosely put together, or mis-stated, not simply is the beneficial effect lost, but the whole industry is placed upon a paltry and altogether ridiculous footing in the eyes of the well informed public. In this respect, probably the daily papers are the most egregious transgressors. "Copy" and "Space" are the watchwords of the paragrapher, and any old thing will go as a rule, so long as it looks "wise." Of course, hardly more than this is to be expected of the newspapers, for their non-technicality is one of their crying defects, but when the same sort of thing appears in the trade periodical, the effect is even worse upon the reader, who generally speaking, takes whatever he may read wholly upon trust, and acts accordingly.

Instances almost without number might be sighted, some of them funny in the extreme, and others simply painful. But a single example of what may be bred in the way of misconception, will suffice to show the trend of this careless technology. In a recent article upon the subject of ignition appearing in a paper of most excellent standing, the old analogy of the flow of water and the flow of electric current was used by way of illustration.

"It is, of course, well that the amateur . . . . should have a rudimentary smattering of electrical knowledge," says the wiseacre. "For those who have not this I would explain that on the analogy of the water mains, the electric current has pressure which is termed voltage, and volume which is termed amperage," etc.

The analogy is perfectly correct, but as is known to students of the matter, and, indeed, as is explained in any elementary text book, the amperage corresponds to the rate of flow of the water, measured in gallons per minute, the unit volume corresponding in a way to the gallon itself, being known as the coulomb, and the relation between it and the ampere being defined as one ampere equals a flow of one coulomb per second. True, the distinction may not appear to be an important one, yet the reader is given a total misconception of the use of the term ampere, and sooner or later will become entirely confused.

Too great importance cannot be placed upon the value of the instructive technical article, no matter what its excuse for publication. But when its information is garbled or mis-applied, it fails utterly of its purpose, does more harm than good, and finally throws into disrepute not simply the print which voices it, but the whole ilk of kindred papers.



Lined up for Hire.

If the cab-horse can appreciate the picture above it should make him indulge in one of those peculiar laughs which are designated as horse ones. The practice of having motor cars which are for hire stand in the public streets like cabs, is a growing one, hence it is fair to assume it is also a propitable affair. Prices for these motor cars vary according to the time of day you wish to hire them, usually the prices advance in a way reverse to the progress of the sun—going up as the luminary goes down.

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WRIT SARCASTIC

Are these Half Dozen Bits of Assorted Advice to the Amateur Chauffeur.

Evidently inspired by the very terse, but nevertheless unusually complete directions given in the Motor World last week for those aspiring to become chauffeurs, a correspondent sends the following half dozen bits of advice which he thinks worthy of being added to the Dont's of the former article:

1. Keep one hand on the steering and the other on the lever. Each may have to be thrown into action very quickly, by moving them in opposite directions. It nature has not endowed you with a double-barreled mind, you would do well to spend as much as possible of your time off duty in learning to describe circles in the air with both hands simultaneously, turning them in opposite directions. This will be good exercise and have the incidental advantage of entertaining the children, plenty of whom will always be found anywhere there is an automobile.

2. Both feet must be kept free from other engagements to actuate the pedals placed beneath them. Practice in the waltz step will be useful in giving the elasticity and flexibility to the ankle which rapid and continuous pedal action demands. If an about-to-become expert is at all grateful for mercies enjoyed and blessings received, some part of his leisure may be employed in giving thanks that he lacks the equipment of a prehensile tail, or something would be found by the clever designers for that to do which would further sub-divide the driver's attention and call for more of a performance on his part.

3. Do not deem it a part of a motor car driver's duty to maintain a flirtation with every female who may temporarily be occupying a seat in the tonneau. There is no great harm in flirting, but it is distracting even if done only half well and the car gives you enough to attend to without the flirtation being added as a means of further distraction.

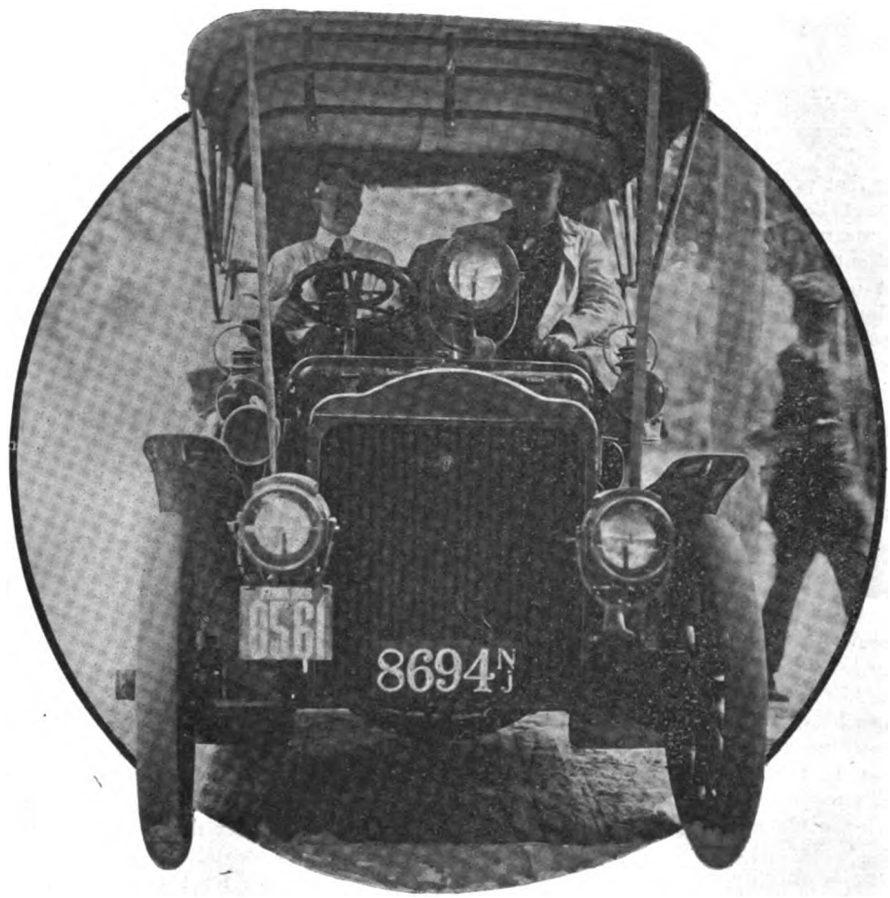
4. It is not a thing Solomon would have been guilty of to see how near you can come to an obstruction or a crossing vehicle without hitting it. Your judgment of distances and relative speeds may not be correct. Of course, you are always entitled to a clear right of way, but remember the world is slow to recognize this, so taking the chances of facilitating the clearing by impact when obstructed is expensive and not infrequently physically unpleasant. Such proceedings have been known to cost men in your position their jobs, their liberties and their wads. There are a few yet who think differently from what you do. They may be fools just as you rate them, but still let them live a while longer and maybe they'll come around to your way of thinking later.

5. If you find it necessary to swear at other drivers try to learn at least enough French to do so in that language, and, failing this, then do so in English, Irish or German, according to your everyday custom, but do so in an undertone. This will be just as effective while those who occupy the car with you will be usually pleased. To look straight ahead produces less responsibility than to keep an eye on the rear end of the car to make sure that your passengers are duly alive to the magnitude of your ability.

6. In the matter of the few leisurely pedestrians yet remaining uninjured you must, of course, use your discretion. That they should not instantly scamper to safety the instant they are deafened by your sounding the siren goes without saying. If they fail to do so—well, deal as gently with the erring as possible. Perhaps they have not yet learned the foolhardiness of crossing a street when a sirened car is within hearing distance. Be patient toward all men—and women; especially toward cripples, old people and heedless children. If you could teach them anything by running them down and pulverizing them it would be different. As a rule, however, to be struck by an automobile is provocative, but it is not educational. Those to whom it happens rarely learn anything from it of future use to them or others, so what is the use of mussing up the car or even wasting time before a coroner's jury by attempting to but education into them?

Believes in Electricity; Uses Steam.

Although Thomas A. Edison pins his faith to the electric vehicle, it is well known that he has never yet brought himself altogether to renounce his allegiance to steam, but instead for his own use, invariably rides in a White car. It was in one of these machines, accompanied by a second, that he made his recent southern tour in search of cobalt deposits, which he finally discovered in Asheville, N. C., as recorded in the Motor World a few weeks ago. Mr. Edison is not a believer in vacations, as such, but works throughout the year. Several times in the course of each season, however, he manages to arrange for a trip of considerable duration, in which he combines with business a deal of enjoyment. On these journeys, which are never short, he usually rides in one car driven by his son Charlie, while in the other, which is stripped down, and used for luggage, are a couple of laboratory assistants, who carry with them a complete analytical outfit, and are prepared to make assays on the ground at any point of anything. The accompanying picture was taken during the southern excursion referred to, and shows the "wizard" himself with his son, seated in the passenger car of the Edison "train" which always attracts more attention than a house afire.



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Good Chemicals Make Good Rubber.

From the very earliest days of the industry the question of properly preparing and curing rubber has absorbed and still continues to claim almost the entire attention of a corps of expert chemists maintained by the larger manufacturers. The importance of this branch—the preparation of the raw material, is seldom underestimated by the maker, but can scarcely be appreciated by the layman, though it may be realized, at least to some extent, when it is known that every large plant has its own laws on this subject and they are kept close secrets. Certain mixtures and methods of treatment whereby certain results may be obtained are valuable items of information that are handed down from father to son and are closely guarded by their possessors. While many methods of curing have been evolved as well as compounds for vulcanizing that produce desirable results, finality has not been reached on this subject by any means. Chemists are constantly experimenting with a view to the improvement of vulcanization compounds, no less assiduously than are those seekers after the apparently impossible who are trying to discover the secret of manufacturing synthetic rubber.

Facilitating the Refilling of Tanks.

A recent invention calculated to reduce the amount of time required in refilling the fuel tanks of cars, and especially applicable to racers, is the work of a Continental genius, who has contrived a filling plug in the shape of a valve worked by a lever, and so arranged that it can be opened or closed instantly without the necessity of having recourse to a screw cap. Considerable delay has been occasioned owing to the need of removing the cap to the tank when refilling, up to this time, and the new device, since it possesses all the advantages of the old arrangement without any of its drawbacks, is thought to be a great success. Jenatzy is said to have adopted the idea for his Grand Prix car, which by this means was provided with a very large inlet opening.

How to Win Friends for the Automobile.

Over in England the Considerate Driving League thus preaches the gospel of sanity in motoring:

Drive slowly:

Through towns and villages or any crowded traffic.

When approaching cross roads or turning corners.

When passing schools, cottages or churches.

On dusty or muddy roads when passing cyclists or pedestrians.

When entering a main road from a side road.

When you see an aged or drunken man on the road.

When passing cars, sheep, dogs, etc., on the road.

Stop:

When an accident of any kind happens, whether your fault or not. Render all assistance in your power, and, as a safeguard against future proceedings, ascertain the names of a few witnesses of the affair.

When you see any likelihood of a horse making a fool of himself. If necessary, do this even before the driver of the animal holds up a warning hand or even begins to swear at you.

Always remember:

That other road users may do the wrong thing at the unexpected moment, i. e., a nervous driver may pull the wrong rein, or a pedestrian hesitate and try several courses before finally choosing the worst one of them all.

That is is your business, not the other man's, to avoid danger.

The road is free for all and owned by none.

Therefore be courteous and considerate, and always drive like a gentleman.

Turning an Acetylene Light Down.

Originally it was not possible to turn an acetylene burner down without the risk of the burner carbonizing, the reason being that a considerable quantity of air is required to ensure the complete combustion of acetylene, and that this air is obtained by the induced draught of the jet of gas itself; so that on turning the flame down the draught became too little, and the burner was choked with carbon formed by imperfect combustion. Recently, however, a burner with a special tip which quite overcomes this difficulty has been introduced on the other side. It gives the most satisfactory results at a pressure equal to 3 in. of water; 2½ in. used to be considered the pressure at the time of the 1898 Exhibition at the Imperial Institute; 4 in. will do no harm; anything over that causes the burner to hiss. With incandescent burners, however, 4 in. is the least pressure at which the burners work properly, and for blowpipes 6 in. is about right.

More Room for Luggage.

With the improvement of the various types of automobile body which is making such marked progress at the present time, there is a constant demand for increased luggage-carrying capacity. This is noticeable not simply in the heavier varities of tonneau car, but also in the runabout types, which are especially fitted for extended touring by two or three persons. The compartment covered by the typical "turtle" deck, while spacious, and almost prodigal, as compared with the accommodations found on the cars of a year or two ago, yet falls a little short of what is required by the up-to-date tourist. What is needed, is accommodation for a trunk in which the personal belongings of the passengers may be disposed in comfortable convenience and security.

Maybe Vanadium is Coming.

A syndicate of Pittsburg capitalists has taken steps to develop a large deposit of vanadium under a concession from the Peruvian Government. Vanadium, which is a grayish-white powder, melts as a very high temperature, and, as an alloy, has been introduced in small quantities in the manufacture of iron and steel, giving the finished metal remarkable strength, resistance, and toughness, to such a degree as to make practical the manufacture of many metal parts at one-half their customary weight and thickness with greater sustaining qualities. Its scarcity heretofore has prevented its extended use. With a larger supply further uses are expected to be found for it which eventually may not be without effect upon the construction of the automobile.

Different Kinds of Sparks Needed.

That different motors sometimes require different appearing ignition flames, is an idea which never is brought home to the motorist until he comes face to face with a new car with which he has not before had experience. Then, in time of trouble, he may pass by a good looking fat spark as being all right, and delve into other things until at length, he is brought back to the spark, having failed to locate the trouble elsewhere. When he finds that the sort of spark which had served him well in his old motor is not at all adequate to the needs of the new. Of course, in general, it may be said to be the fatter the spark, the hotter the cylinder firing, but true as this may be, it also is a fact that some motors will get along on very little spark while others require a great deal.

To See the Spark Spark.

In order that the working of the spark plug may be observed while the motor is running, a British inventor has contrived a bifurcated fitting to be inserted in the cylinder head which provides in one branch a thread for the reception of the plug, while the other contains a tiny peep-hole sealed and glazed with a spherical lense. Its shape facilitates packing the latter in such a way that it will not be liable to leak or blow out, while its position is such that the observer is enabled to watch the action at the sparking points at any time. The idea is almost as old as the gasolene motor itself, the principle having been employed by investigators to watch the action of the gas. Nothing of the sort ever has been applied regularly, however, to motors in practical use.

Extinguishing Scorching with a Hose.

Having been restrained by legal proceedings from attacking them with firearms, the British motorphobe has now adopted the practice of crouching behind a hedge with a garden hose and playfully sprinkling the passing motorist as he slips by.

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The Week's Patents.

823,753. Friction-Clutch. Jose G. Babio, New York, N. Y. Filed Jan. 10, 1906. Serial No. 295,343.

Claim.—1. In a clutch of the class described, a casing adapted to be secured to a driven shaft and provided with a main annular clutch member, a driving-hub adapted to be connected with a driving-shaft and provided with radial arms having recesses in the ends thereof and projecting fingers, supplemental annular clutch members mounted on the opposite side of the main clutch member and in the recesses of said arms, one of said supplemental annular clutch members being provided with ears which extend transversely of the other supplemental annular clutch member and inwardly thereof, toggle-levers pivoted to the fingers of said arms and to one of said supplemental annular clutch members and to the ears of the other supplemental annular clutch member, and means for moving the supplemental annular clutch members toward and from the main clutch member, substantially as shown and described.

823,811. Automatic Current Making and Breaking Device for Automobiles and the Like. Andrew L. Riker, Bridgeport, Conn., assignor to The "Locomobile" Company of America, New York, N. Y., a corporation of West Virginia. Filed Oct. 8, 1903. Serial No. 176,223.

Claim.—1. An automatic circuit making and breaking device containing an electromagnet, its armature, and a resilient carrier therefor, a resiliently-mounted contact member, a headed connection between said armature-carrier and contact member, and retractile stops for said armature-carrier and contact member, and arranged to provide a lost motion between the said headed connection and said contact member.

823,829. Shock-Absorber. Oscar E. Vestal, Pittsburg, Pa. Filed Aug. 24, 1905. Serial No. 275,528.

Claim.—1. In combination, a vehicle body, a vehicle spring, a friction drum secured to the vehicle body, a split friction band thereon having an operating arm intermediate and the ends of the split band, means for securing the ends of the split band rigidly and adjustably in position, and a connecting arm pivotally secured to the band arm at one end and to the springs at the other.

823,839. Tire. William N. Wright and Elmer Carson, Beaver, Pa. Filed Apr. 25, 1905. Serial No. 257,379.

Claim.—1. In a tire, the combination of a sectional metallic core, a plurality of circular wedge-shaped disks arranged on said core, and bolts arranged at intervals and extending between the disks, said bolts having bearing-surfaces extending beyond the outer surface of the tire substantially as described.

823,938. Wheel. Matthew Dixon, Long Island City, N. Y. Filed July 29, 1905. Serial No. 271,733.

Claim.—1. A wheel provided with a series of cushion-springs located upon a felly and surrounded by a tire composed of a spirally-wound metal wire, and a locking device, all combined, substantially as set forth; whereby the tire will be supported upon the springs and prevented from turning about the wheel.

823,970. Variable-Speed Mechanism. Arnold W. Pupke, New York, N. Y. Filed Aug. 3, 1905. Serial No. 272,459.

Claim.—1. In mechanism of the class stated the combination of a motor-shaft and a driven shaft, a gear upon the motor-shaft, another gear upon the driven shaft, speed-differentiating gears interposed between them and which are adapted to movement independent of each other, with one part of which the motor-gear meshes and with another and independently-movable part of which the driven gear meshes, mechanism brought into action by the resistance of the load to the push power, whereby the intermediate gears shift position relative to each other, and means to regulate and control such shift of position.

823,971. Irreversivle Controlling Apparatus. Léon E. Remondy, Vincennes, France. Filed Dec. 11, 1905. Serial No. 291,283.

Claim.—1. A controlling apparatus comprising a rotatable controlling member, a receiving member mounted to rotate concentrically with the controlling member, a fixed drum, and a spring wound spirally on said drum and normally gripping said drum, substantially as described.

823,973. Induction-Coil. Stanislaus H. Sauve, Spokane, Wash., assignor of forty-nine one-hundredths of Jacob H. Robbins, Spokane, Wash. Filed May 23, 1905. Serial No. 261,836.

Claim.—1. In an induction-coil a disconnected wiring forming part thereof for increasing the undulating current and the electro-motive force.

824,041. Implement for Putting on Pneumatic Tires. Philip F. Pilliner, Philadelphia, Pa. Filed Nov. 9, 1905. Serial No. 286,517.

Claim.—An implement of the character described, the combination of a bar, spaced prongs on one end of the bar, an additional prong on the bar intermediate the spaced prongs adjacent to the base thereof and extending at approximately right angles thereto, a clip embracing the bar intermediate its length and a double hook pivotally held by the clip.

824,105. Speed-Regulating Mechanism for Gas Engines. George H. Ellis, Chicago, Ill., assignor to International Harvester Co., a comporation of New Jersey. Filed July 10, 1905. Serial No. 268,927.

Claim.—1. In a speed-controlling mechanism for gas engines, in combination, a longitudinally-movable cone-sleeve, a valve-controlling bar, and a pivotally-mounted detent lever provided with a sleeve-engaging roller on the end thereof, the pivotal axis of said lever paralleling and the pivotal axis of said roller intersecting the longitudinal axis of said cone-sleeve.

824,110. Roller-Tooth Variable Driving-Gear. William E. Golden, Detroit, Mich. Filed Aug. 19, 1905. Serial No. 274,825.

Claim.—1. In a variable drive-gear, the combination of a driving and a driven gear-wheel revoluble in planes at right angles to each other and having intermeshing conoidal roller-teeth and means for shifting the driving gear-wheel axially in either direction, the driving gear-wheel having its roller-teeth wholly supported by individual shrouds forming open intervals between the rollers through which the roller teeth of the driven gear are adapted to pass in and out of mesh with those of the driving-gear in shifting the same.

824,151. Motor-Vehicle Brake. Charles Schmidt, Detroit, Mich., assignor to Packard Motor Car Company, Detroit, Mich., a corporation of West Virginia. Filed Feb. 4, 1905. Serial No. 244,202.

Claim.—In a motor-vehicle, the combination with the fixed rear-axle casing, the rear-axle sections rotating in said casing and the wheels connected to said sections and provided with inner and outer braking-surfaces, of brackets integral with said rear-axle casing, inner and outer brakes supported by each of said brackets, springs supported by said brackets for raising both the inner and outer brake-shoes from the braking-surfaces of the wheel, studs upon said brackets for carrying said inner and outer braking-shoes, and means for applying said inner and outer brake-shoes independently.

824,215. Brake-Rigging for Self-Propelled Vehicles. Charles O. Snyder, New York, N. Y. Filed May 9, 1905. Serial No. 259,607.

Claim.—1. In a brake-rigging, a rotating brake-drum, a radius-rod attached to the vehicle and extending into primary proximity to said drum, a shoe pivoted to said radius-rod and extending annularly around said drum, a lever also pivoted to said radius-rod, and having a link connection with said shoe, and means for imparting tension to said lever.

824,240. Supplemental Tire for Vehicle-Wheels. Charles H. Goodman, Bucyrus, Ohio. Filed Mar. 30, 1906. Serial No. 308,832.

Claim.—1. The combination with a wheel having a permanent tire, of a supplemental tire removably fitting the permanent tire and comprising two bands one curved transversely to fit the curvature of the permanent tire at one side of the vertical center thereof, and the other having a centrally-located flange and oppositely-extending sides, means connecting the curved band with the other band at one side of the flange portion of the latter, and clamp members hinged to the other side of said band and extending inward and attachable to a fixed part of the wheel.

824,241. Vehicle-Wheel. William E. Greer, Akron, Ohio, assignor of one-half to George H. Conrad, Coventry township, Summit county, Ohio. Filed Oct. 6, 1905. Serial No. 281,656.

Claim.—1. A vehicle-wheel comprising a rim forming a seat for a tire, keys arranged at suitable intervals on the periphery of said rim, detachable side flanges constituting in connection with said rim a channel, a detachable tire mounted on said rim and having side bands or edges, a ring having outwardly-inclined side faces mounted on said rim between said side bands or edges, and further provided with notches extending transversely throughout its inner face for engagement with the keys and when said ring is slid laterally onto said rim said weys will engaget in the notches, thereby locking said ring against circumferential movement.

824,245. Sparking Igniter. Charles M. Huey, Cleveland, Ohio, assignor of two-thirds to Webster F. Traves, Cleveland, Ohio. Filed June 24, 1904. Serial No. 213,980.

Claim.—1. In a sparking igniter, the combination of a casing; a core; an armature; a plug connecting the core and the cylinder-head; a contact electrode secured to said plug and insulated therefrom; circuit connections; a rod carrying a second contact-electrode; means connecting said rod and one end of said armature; and a spring intermediate of said core and the other end of said armature and constructed to bear against the lateral edges of the latter, said

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spring thus centering the armature relatively to the core and holding the same normally out of contact with said core.

824,396. Explosive-Engine. Ellis J. Woolf, Minneapolis, Minn., assignor to Woolf Valve Gear Co., Minneapolis, Minn., a corporation of Minnesota. Filed May 5, 1904. Serial No. 206,463.

Claim.—1. In a two-cycle explosive-engine, the combination with an explosion-cylinder and a charging-valve controlling the admission of the explosive mixture thereto, of a differential piston encircling the crank-shaft, the smaller member of which differential piston works in said explosive-cylinder, and controls the exhaust-port, and the larger member of which works in a charging-cylinder on the opposite side of the crank-shaft, and is connected thereto, substantially as described.

824,476. Wheel-Tire. Thomas Furlong, St. Louis, Mo. Filed Oct. 2, 1905. Serial No. 280,993.

Claim.—1. An inflatable tire comprising a solid base portion having a flat face which bears upon the face of the rim of the wheel upon which the tire is placed, a solid tread portion having a flat outer face and being of approximately rectangular shape in cross-section, and comparatively thin side walls connecting the base and tread portions, the inner face of the base portion being convex and the inner face of the tread portion being concave so that when the tire is deflated the tread portion will rest squarely on the base portion and thus produce practically a solid tire of rectangular shape in cross-section; substantially as described.

824,528. Explosion-Engine. Harvey D. Dibble, Mystic, S. D. Filed Feb. 2, 1905. Serial No. 243,828.

Claim.—1. An explosion-engine comprising a main shaft, a working cylinder, a piston therein connected with the main shaft, an auxiliary cylinder, a piston in the said auxiliary cylinder and air-cushioned, a partition separating the said cylinders and having a connecting-port, a valve controlling the said port and periodically actuated from the main shaft, an admission-valve for the compression end of the working cylinder and the said auxiliary cylinder.

824,533. Roller-Bearing. Thomas A. Edwards, Boston, Mass. Filed June 1, 1903. Renewed Dec. 6, 1905. Serial No. 290,604.

Claim.—1. A roller-bearing comprising a journal, a casing surrounding said journal, antifriction-rollers interposed between the journal and casing, and spiral separators each bearing simultaneously on the inner surface of the casing, and the peripheries of two adjacent rollers.

824,550. Frame for Motor-Vehicles. Léon Lazerges, Issy-les-Moulineaux, France. Filed July 6, 1905. Serial No. 268,504.

Claim.—A sill for motor-car frames, comprising interconnected bars of U-shaped cross-section one of which is seated within the other, one of the side flanges of one of said bars being lapped about the corresponding flange of the other bar and riveted thereto.

824,604. Pneumatic Tire. Charles R. Twitchell, Los Angeles, Cal., assignor of one-half to James M. Brennan, Los Angeles, Cal. Filed Sept. 25, 1905. Serial No. 280,029.

Claim.—1. A pneumatic tire comprising an outer casing, an inner air-tube, and a covering for the latter composed of wrappings of textile material helically wound thereon, said wrappings being wound in opposite directions and unsecured to the tube.

824,610. Friction-Clutch. Henry L. Whitman, St. Louis, Mo. Filed June 24, 1905. Serial No. 266,778.

Claim.—1. In a friction-clutch, the combination of a driving-shaft, a pulley loosely mounted on said shaft, a sectional ring located interior of the rim of said pulley and consisting of movable members arranged to frictionally engage the pulley-rim, levers for moving said ring members, a slidable shift-collar, and a yoke surrounding said collar and having connection with said levers; said yoke having an interior diameter greater than the diameter of said collar and movable transversely to the axis of said shaft, substantially as set forth.

824,624. Change-Speed and Reversing Gear for Automobiles. John H. Chambers, London, England, and Robert M. Chambers and Charles E. Chambers, Belfast, Ireland. Filed May 10, 1905. Serial No. 259,825.

Claim.—1. A change-gear for automobiles comprising a freely-mounted driver, a single set of epicyclic gears consisting of a sun-pinion, planet-pinions and an annular wheel, the sun-pinion and the annular wheel also being freely mounted, clutches for connecting them to the driver, means for locking them and means for operating said clutches and locking means, substantially as and for the purpose hereinbefore set forth.

Might Take the Place of Diamonds.

Of course, self hardening steel is soft when hot, like all ordinary steel, but when allowed to cool naturally, it may be said to be in its natural state, says the English Mechanic. Now, ordinary tool steel treated in the same manner is in the same natural state, so far as treatment is concerned, and goes through a process of heating and quenching to give it further hardness; so, seeing that ordinary steel goes through further process to render it still harder, why should not self-hardening steel be capable of further treatment to give it a hardness in the proportion as soft tool steel: hardened tool steel: self-hardening steel to hardened self-hardening steel, or thereabouts. If this could be done, a hardened self-hardening steel tool could be used for many purposes in place of diamonds, such as rock drilling, etc. It is hardly to be suggested that the process could be carried on to infinity; but if a soft metal-like copper can be hardened to equal hard steel, one would think that, having a very hard metal to start with, it would be possible to finish off with an exceedingly hard one.

Lacks a Department for "Fines."

Yachtsmen have their logs, tourists their notebooks, and motorists have, or should have their own little volumes in which are recorded the doings of each day spent with the machine. For the records there set down not only furnish a deal of amusement in after hours of leisure, but also serve as a useful guide to the owner and his friends in recovering the same ground, or in meeting difficulties similar to some of those encountered while "making copy" for its pages. Several volumes of tabular blank records have been prepared for this purpose, each contrived according to the fancy of the compiler, and each differing from the others accordingly, in measure with the difference of the men.

The latest of these is known by the simple title of the "Automobilists' Daily Record of Runs," and has just been issued by the Frederick A. Stokes Company, New York, having been put together in England by Messrs. Charles Jarrott and W. M. Letts, a firm of dealers in London. It contains a digest of the American statutes bearing on the subject of motoring, together with a few "what-you-ought-to-knows" regarding touring in England and France, a speed table, and the log. The latter is arranged to contain the essentials of every trip in convenient and accessible form, each item being placed under an appropriate and legible heading, speeds, road and weather conditions, stoppages, costs and incidents all receiving their proper share of blank space to be filled in. The book is prettily bound in cloth, and when completed by the owner, will prove at once an attractive and useful souvenir of a season's motoring.

Tinning Does the Trick.

The great disadvantage of aluminum to the sheet metal worker is the difficulty encountered in soldering. This is caused by the formation of an oxide on the surface of the heated metal, the oxide preventing the solder from alloying with the aluminum. says the Mechanical World. This difficulty can be surmounted by employing either of the following methods, which will give a strength equal to the aluminum itself. Make a solder A of 80 per cent. tin and 20 per cent. zinc; or B, 70 per cent. tin, 25 per cent. zinc, 3 per cent. aluminum, 2 per cent. of phosphor tin, using stearic acid as a flux. Tin the surface of the aluminum with either A or B solders, moving the bit backwards and forwards over the metal and flowing solder. The film of oxide can then be removed, and the coated surface can be easily soldered with either A or B solders, or ordinary tinsmith's solder. The aluminum must be heated to about 670 deg. F. A blow-lamp will be of great value to assist in heating the metal to be soldered. An aluminum soldering bit will be found to be of more service than the ordinary copper bit, and it can be tinned with the same flux.

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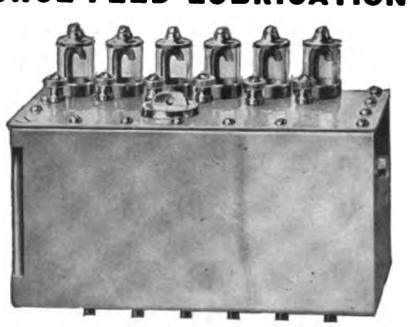
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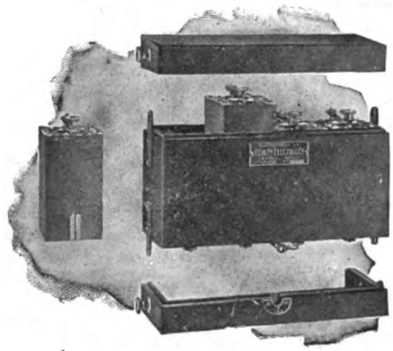
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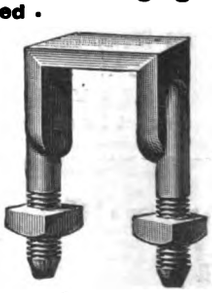
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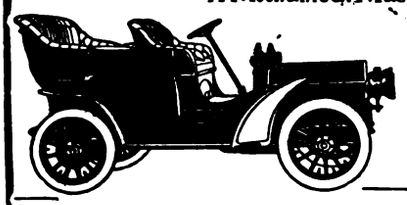
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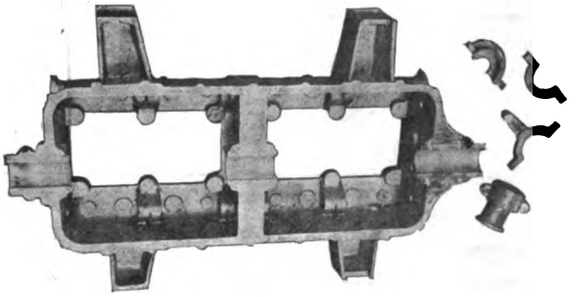
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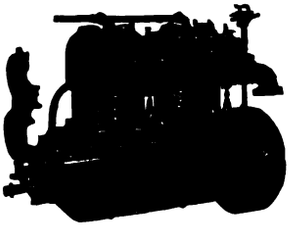
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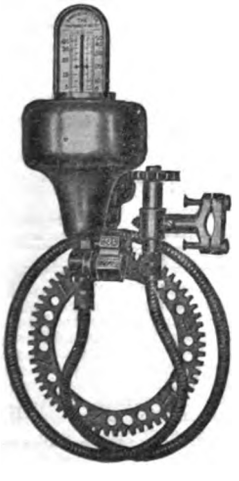
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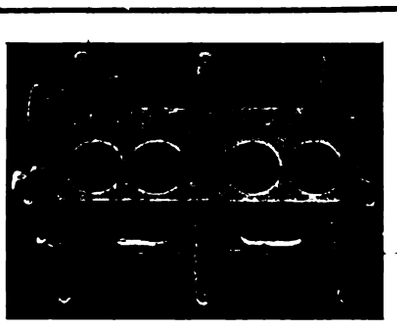
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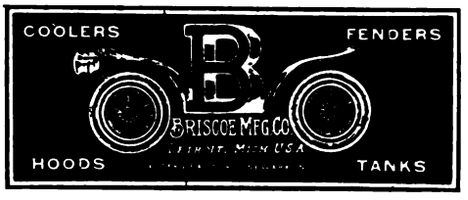
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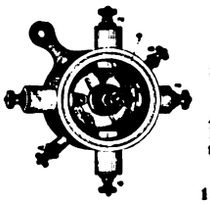


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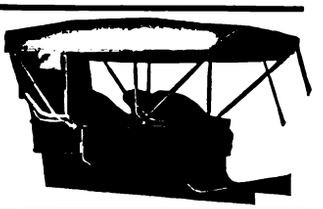


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for sparking your automobile or motor boat, Keep your storage battery always full of "juice" and ready to furnish fat, hot sparks by installing an **Apple Battery Charger.** A perfect dynamo that charges your storage battery right on your car while it is running. Write for full information today.



THE DAYTON ELECTRICAL MFG. COMPANY, 91 St. Clair St., Dayton, Ohio

---

THE MOTOR WORLD PUBLISHING COMPANY,
154 Nassau Street, New York.

Enclosed find $2.00 for which enter my subscription to

The Motor World

for one year, commencing with the issue of_____

Name_____

Address_____

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Stamped Parts

FOR AUTOMOBILES.

COLD PRESSED WORK

In Steel, Brass and Aluminum.

We make a specialty of difficult drawing in heavy steel and in stampings to replace malleable iron and brass castings.

THE CROSBY COMPANY,

BUFFALO, N. Y.

Whitlock Coolers

FOR 1907

WILL BE THE STANDARD FOR HIGH-GRADE CARS.

Do not waste time and money on experiments.

If prompt deliveries appeal to you, you will be interested to know that we already have **the** largest factory in America engaged in manufacturing cellular coolers, and that we are now erecting a second and larger building which will more than double our present capacity.

In addition to cellular coolers, we make **disc radiators** of several types, **hoods, exhaust** and **inlet pipes** and **headers, muffler** pipes and bent and brazed work of every description for automobiles.

THE WHITLOCK COIL PIPE COMPANY,
HARTFORD, CONN.

COLUMBIA IGNITOR DRY CELL



Our New Ignition Battery
FOR 1906 SEASON.

IS A WINNER.
Send For Booklet "KINKS."

National Carbon Co.
CLEVELAND, OHIO.

GRAY AND DAVIS

"Makers of Smart Automobile Lamps."

Be Sure Your Car is Equipped with Them.

AMESBURY, MASS.

NEW YORK SCHOOL OF
Automobile Engineers
Incorporated. 146 WEST 58th STREET.
Under personal direction of
Prof. Chas. E. Locke, M.E. Ph.D., School of Engineers, Columbia University
Departments include machine tool and forge shops, assembling and test shops with every type of motor; also laboratories completely and specially equipped to teach all component parts of automobiles. Day and evening class.
Special Course for Owners.



THE LAMBERT Famous Friction-Drive Car.

Models and Styles to Suit the Purchaser.

PLEASURE CARS, RUNABOUTS and TOURING CARS, and Lambert Patented Friction Drive COMMERCIAL TRUCKS. Prices $900 to $3000. Write for particulars.
☞Some attractive agency propositions not yet closed.

THE BUCKEYE MFG. CO., Anderson, Ind., U. S. A.
Members A. M. C. M. A.

STANDARD
ROLLER BEARING COMPANY
PHILADELPHIA, PA.

Manufacturers of Steel, Brass and Bronze Balls, Ball Bearings, Roller Bearings and Automobile Axles

Send for New Catalogue No. 16

The Grout Gasoline Car

for 1906.

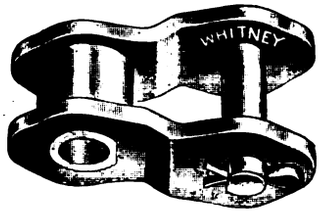
Send for Particulars.

GROUT BROTHERS AUTOMOBILE CO.,
ORANGE, MASS.

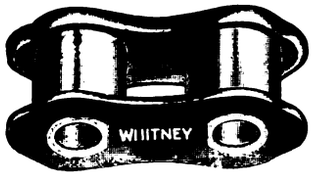
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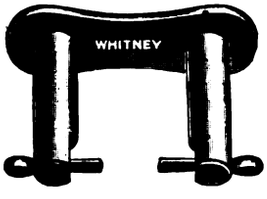
Connecting Link



OFFSET LINK



Assembled Center Block

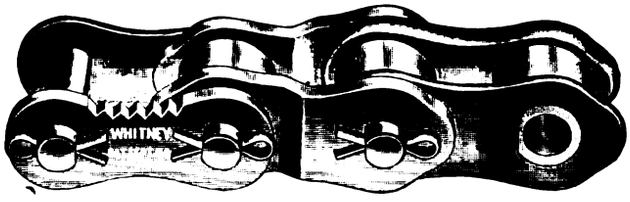


Side Link with Rivets Assembled



Side Link Plain

"Whitney" Offset Links for use when it is required to shorten or lengthen a chain only one Link.



Against claims made by Competitors, we submit the following list of Motor Car Manufacturers using "WHITNEY" ROLLER CHAINS and STANDARDS. Is it not time for everyone to admit that "WHITNEY" STANDARDS for ROLLER CHAIN dimensions are now the American Standards?

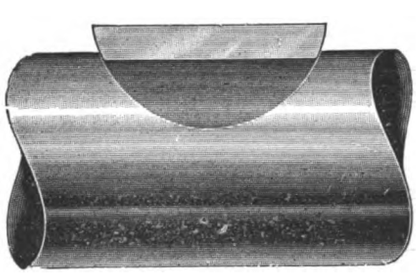
"ADAMS-FARWELL" "ADAMS VEHICLE CO." "AMERICAN MOTOR TRUCK" "AUTO-CAR EQUIPMENT" "BAKER" "BERKSHIRE" "BIDDLE-MURRAY" "CADILLAC" "COLUMBIA" "CHAMPION (McCrea)" "CROWN" "CRAWFORD" "COLUMBUS BUGGY CO." "ELWELL-PARKER" "FORD" "FRANKLIN" "GAETH" "GALE" "GROUT" "HEWITT" "THE HOLMES" "IROQUOIS IRON WORKS" "KNOX" "LAMBERT" "LEAR" "MATHESON" "MACK BROTHERS" "MITCHELL" "MOLINE" "NEW YORK MOTOR TRUCK" "OLDS" "PACKARD" "RAMBLER" "RAPID" "REO" "SIMPLICITY" "STEARNS" "THOMAS" "TOURIST" "WAYNE" "WESTERN MOTOR TRUCK" etc.

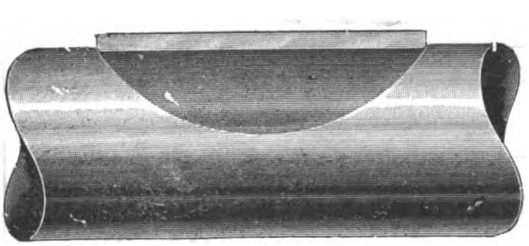


Detachable Type Patented









The Woodruff Patent System of Keying has been adopted by the Leading Manufacturers of Motor Cars, Machinery, etc. It is more mechanical, more efficient and also a great labor saving invention.

We carry over 50 sizes of KEYS and CUTTERS in stock for immediate delivery.

THE WHITNEY MFG. CO.,

Hartford, Conn.

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We Always Like to See a Motorist

Every tire a **good** tire. We have no special tires for special purposes. You can be sure of the quality of the tire **you** buy.

Who is just as particular about the make of his tires as he is about the make of his car.

He is almost SURE to do his riding on

You may never have occasion to use the reserve strength that is put into these tires (we hope you won't) **but it's there if you do.**

MORGAN & WRIGHT TIRES

CLINCHER——DUNLOP——BAILEY "WON'T SLIP" TREAD



Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect We guarantee our tires only on rims so branded.

MORGAN & WRIGHT, CHICAGO

New York Philadelphia Dayton Minneapolis St. Louis Denver San Francisco Kansas City
Syracuse Boston Cleveland Detroit Atlanta Los Angeles Portland

A STEADY PULL OR A HARD JERK?

Which do you think is the best for machinery?

On the face of it there is only one answer. You'll probably think the question borders on the absurd.

But that is really the proposition upon which you must make a choice, in deciding between a two-cycle and a four-cycle motor.

The Elmore is the Two-cycle. This car has compelled the admiration of the entire automobiling world by sheer merit. **Its engine gives twice the impulses, cylinder for cylinder, that are possible with the four-cycle type.**

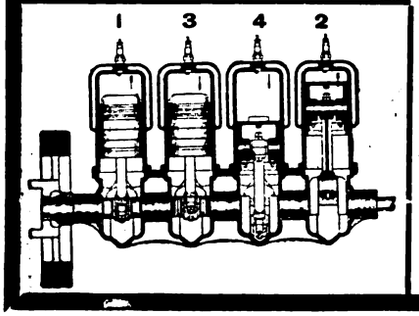
The four-cylinder Two-cycle has four energized piston strokes at every revolution of its main shaft, without employing a single valve.

There is not to-day a touring car of the four-cycle type in all the world that gives the same result. It would require eight cylinders, sixteen valves and more than one hundred and fifty auxiliary parts to do it.

So, you see, our text was not absurd. The Elmore's torque is more constant than that of any other car. With virtually a steady pull, its motor free from spasmodic, racking action that must come from fewer impulses per revolution.

And this all makes for reduced up-keep expense.

Ask for Elmore literature to-day, and look into this matter. It will pay you, you see.



Model 15, Four Cylinder, Two-cycle Elmore, $2,500.

THE ELMORE MANUFACTURING COMPANY,

1104 Amanda Street, CLYDE, OHIO.

Members Association of Licensed Automobile Manufacturers.

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TO SELLERS AND USERS

OF

CLINCHER TIRES

We have commenced and are vigorously prosecuting suits for infringement of our patents against the Pennsylvania Rubber Company and the Michelin Tire American Agency, Inc., on account of the sale of Clincher tires.

The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J Patents:

G & J Tire Co.
Hartford Rubber Works Co.
Morgan & Wright.
B. F. Goodrich Co.
Diamond Rubber Co.
Goodyear Tire & Rubber Co.
Fisk Rubber Co.
International Automobile & Vehicle Tire Co.
Continental Caoutchouc Co.

G & J TIRE CO.

Indianapolis, Ind.

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CHROME-NICKEL STEEL used throughout in construction of shafts, transmission and gears

"Matheson"

HESS-BRIGHT IMPORTED — ball-bearings secure perfect transmission of power from engine to wheel.

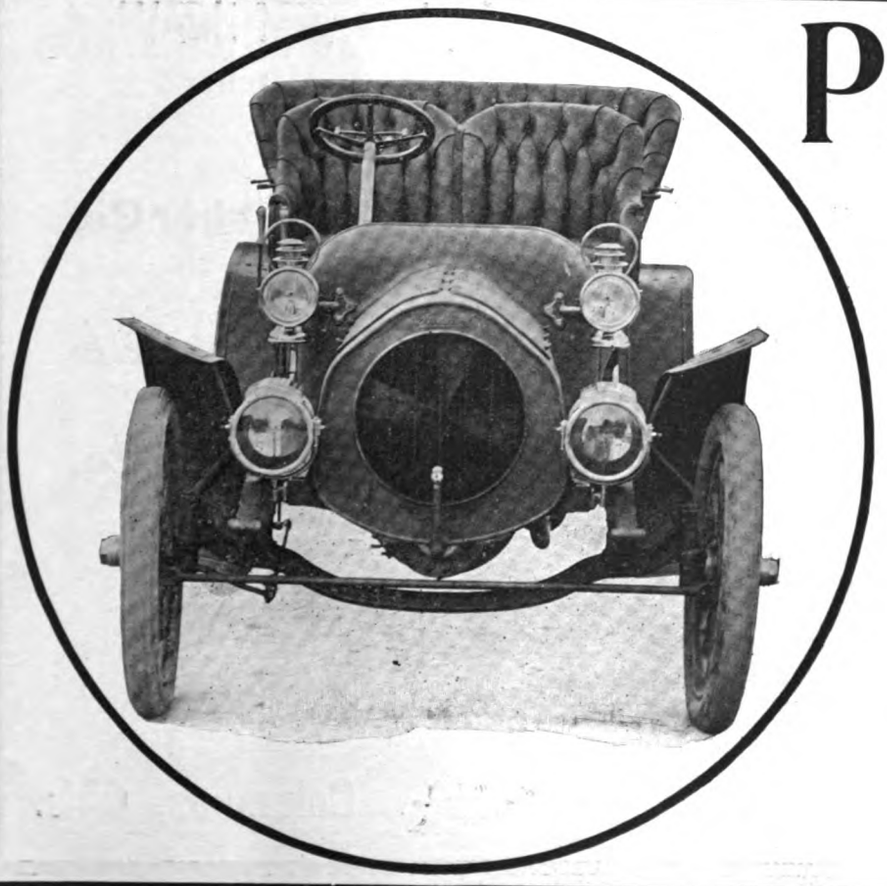
Self Starting From the Seat With Make-and-Break Ignition.



Licensed Under Selden Patent

THE MATHESON COMPANY OF NEW YORK,

FACTORY, WILKES-BARRE, PA. — 1619 BROADWAY, near 49th Street. — ONE YEAR GUARANTY.



PREMIER

DEF.—First in rank or position.

The Premier car here shown worthily bears its name. It's as good as most cars twice its price and twice as good as cars at anywhere near its own price.

Here are a few specifications:

Up-to-date design, I-beam section axle, selective type sliding gear transmission on Annular Ball Bearings, well designed bevel drive rear system, ideal and reliable oiling system, liberal sized tires, pleasing body design, luxurious upholstering, powerful and dependable air-cooled motor which performs well in hot or cold weather.

Send for catalogue and booklet S.

PREMIER MOTOR MFG. CO.

Indianapolis, Ind., U. S. A.

Members Am. Motor Car Manufacturers Asssociation.

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Changing Over Tires—

a big lot of it going on this season and a decided leaning towards

GOODRICH QUICK DETACHABLES

for the new equipment. It looks as though they represent a supreme effort in tire building—plenty of reports to that effect anyhow.

THE B. F. GOODRICH COMPANY, - - - - Akron, Ohio.

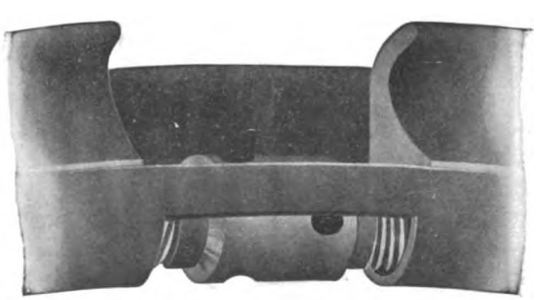
Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

NEW YORK—66-68 Reade St. & 1625 Broadway.
CHICAGO—24 E. Lake St.
BOSTON—161 Columbus Ave.
BUFFALO—731 Main St.
DENVER—1444 Curtis St.
OAKLAND, CALIF.—Fourth & Washington Sts.
CLEVELAND—2188 9th St., S. E.
PHILADELPHIA—909 Arch St.
DETROIT—80 E. Congress St.
ST. LOUIS—3926-28 Olive St.
LONDON, E. C., 7 Snow Hill.

Pioneer Steel Wheel and Universal Rim Manufacturers of the World

Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

Sole Makers of the HARTFORD UNIVERSAL RIM for DUNLOP AND CLINCHER TIRES



MIDGLEY MANUFACTURING COMPANY, - - Columbus, Ohio.

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Contestants in Class III.

Price	Name	Time
$1800	Mitchell	0:43⅕
$2250	Olds	0:43⅘
$2500	Ford	0:44⅘
$2500	Ford	0:45⅕
$2800	Franklin	0:51⅘
$2500	Rambler	0:51⅞
$2000	Queen	0:52⅕
$2250	Olds	0:52⅘
$3000	National	0:54
$3000	Frayer-Miller	0:54⅘
$1800	Franklin	0:59⅕
$3000	Marmon	0:59⅘

Besting also the following in Class IV.

$4000	Thomas	0:45
$3500	Royal	0:46
$3500	Thomas	0:59⅕

And the following in Class V.

$3500	Royal	0:47

Wherever the Mitchell Tries, It Wins

WE HAVE been so busy trying to get out cars enough to fill our orders that we have not had time to engage in the races, hill-climbing contests, etc., which are continually being pulled off.

It is a peculiar and very significant fact, however, that whenever the MITCHELL has tried it has WON, beating out cars at often DOUBLE the price.

What will happen if we ever have time enough to follow the lead of others, make up special cars and "go after" these records instead of picking them up incidentally here and there with stock cars is a matter of conjecture.

Our customers say that no matter what test is given the Mitchell, it has a most gratifying habit of "making good."

Our handsome Art Catalogue (price 10c) will tell you about the Touring Car at $1800 which has made dozens in the $3000 to $5000 class look foolish. Write for it.

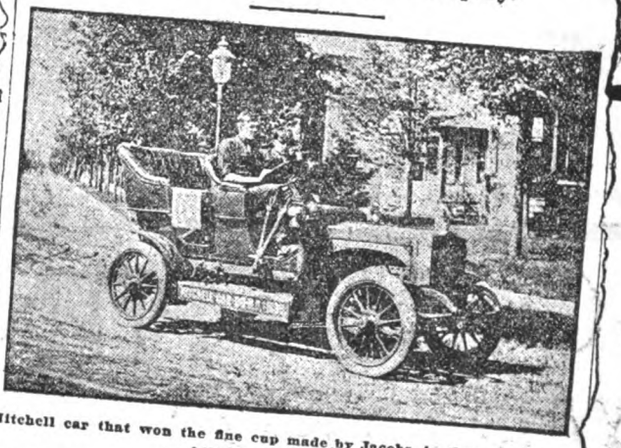
Mitchell Motor Car Co.

104 Mitchell Street, Racine, Wis.

THE MINNEAPOLIS

Mitchell Automobile Won Prize Cup for Hill Climbing

It Is a Handsome Affair, Donated by Leopold Metzger of S. Jacobs & Co.—Now on Exhibition at Garage of Auto Construction Company.



Mitchell car that won the fine cup made by Jacobs, in the recent auto hill climbing contest.

The 30-horse power Mitchell automobile created an enviable record for itself when it crossed the tape in the hill climbing contest at the Riverside hill driveway in 43⅕ seconds, thus winning the finest valuable motoring trophy ever offered in an automobile contest in the Northwest.

The course is 2,000 feet in length, and has a rise of 76 feet. It contains one hard turn and presents several minor inequalities, but the roadbed on the day of the contest was firm and dry, offering the drivers an excellent opportunity to demonstrate the worth of their respective machines.

With the exception of the class in which the stripped and freak cars were allowed to enter, the chief interest was undoubtedly centered in Class 3, as it was in this class that the higher priced and popular cars were running. Considerable rivalry had been existing among most of the dealers and owners, and, as had been predicted, the finishes were close and exciting, with the Mitchell winning out by the mere fraction of a second.

It sailed up the incline in a beautiful manner, with the driver and his assistant leaning far forward in order to afford the least resistance to the wind. Their run was the best of the day, with the probable exception of that made by the little steamer which set a new record for the hill.

The $1,800 car made unusually good showing in competition with its $2,500 and $3,000 rivals.

Considerable credit for the excellent record made by the Mitchell must be given to the daring and skillful manipulation of the levers and wheel, for had not the driver been perfectly cool and well able to handle his car, disastrous results might have been expected. Earnest Simpson, who brought the car successfully over the line a week ago Saturday, has plenty of nerve as well as skill, and will drive the Mitchell in all future speed contests.

C. C. Evans, of the Auto Construction Co., the owner of the machine in question, is now exhibiting to his friends the handsome trophy 'cup which he won in the hill climb. It is without doubt one of the most beautiful cups ever offered for any automobile race in the Northwest.

It was donated by Leopold Metzger of S. Jacobs & Co., jewelers, 518 Nicollet avenue. Resting on a pure ebony base, it stands two feet high, is made of solid sterling silver, and is lined with a thin covering of gold. It is adorned with a miniature automobile at the top, while a decidedly effective finish is given by three large handles each with a mercury wheel at its base. It is on exhibition at the Auto Construction Co.'s Garage, 1401 Hennepin avenue.

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National

WORLD'S RECORDS

For 1,000 miles and 1,094 3/16 miles in 24 hours

Made Nov. 17, 1905 STILL STAND UNEQUALLED



WATCH FOR THE ROUND RADIATOR

Proving National Superiority

WRITE FOR PARTICULARS

4 Cyl., 35-40 H.P. - $3,000 6 Cyl., 50-60 H.P. $4,000

NATIONAL MOTOR VEHICLE CO.

MEMBER AMERICAN MOTOR CAR MANUFACTURERS ASSOCIATION, CHICAGO.

1007 E. 22d St.
INDIANAPOLIS
IND.

SOMETHING'S WRONG



and the question is to find it. The Veeder Odometer readings show that it is taking half as much gasoline again to run the car 100 miles as it did a month ago. That means lack of lubrication somewhere or faulty engine operation. Anyway, it's serious, and it's lucky the Veeder Odometer readings showed it. A Veeder is a mighty valuable instrument on a car.

"It's nice to know
How far you go."

—*Veeder Odometers.*

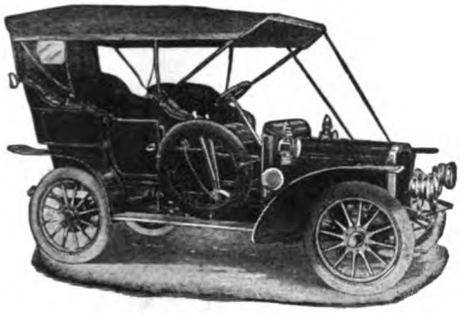
THE VEEDER MFG. CO., 26 Sargeant St., Hartford, Conn.

Makers of Cyclometers, Odometers, Tachometers, Tachodometers, Counters and Fine Castings.

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Aerocar

Facts that Count



In the Chicago-New York relay run, carrying the despatch from General Carter to General Grant, the **Aerocar** run was from Kingston to Newburg, over the sticky, red clay roads, in rainy weather, and part of the way in the night.

In places the mud was axle deep and it was necessary to run on low gear at times. But through it all the **Aerocar** never "turned a hair"—never once stopped, nor showed any signs of overheating.

The Courier remarked: **"It's the best running car I've been in since leaving Chicago."**

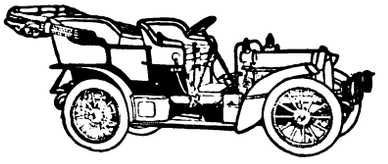
The **Aerocar** comes to the purchaser completely equipped as shown above—nothing to buy but the gasoline—for $2,800. With Lamp and Horn Equipment, $2 500.

The Aerocar Company

DETROIT, MICH., U. S. A.

Members of American Motor Car Manufacturers Association.





Our catalogue omits generalities. Dwells on the specific points in which the automobilist is interested.

Locomobile

COMPANY OF AMERICA

BRIDGEPORT, CONN.

Member A. L. A. M.

IMPROVEMENT—NOT IMITATION!

You must sharply discriminate in the use of these words



THE 50 H. P.

THOMAS FLYER

The combined brains of the Thomas French and American Engineering Departments have taken the best that Europe has yet produced, and by perfecting, has excelled it.

The Thomas at $3,500.00 is to-day the leading car in all the world, and this superiority is conceded on both sides of the Atlantic.

Write to day for the handsome Thomas Catalogue and other literature descriptive of the Thomas car.

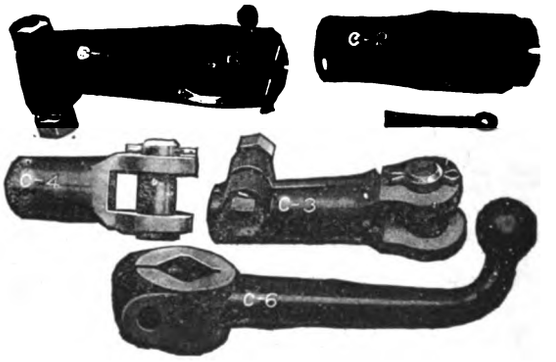
The Thomas Motor Company

1416 Niagara St., Buffalo, N. Y.

Members Association of Licensed Automobile Manufacturers.

The B & S Steering Connections.

B TRADE MARK B TRADE MARK



DROP FORGED OF STEEL AND MACHINED READY FOR USE.

EASILY ADJUSTED.

In two sizes, for light and heavy vehicles.

Described in our illustrated catalogue. Ask for it.

THE BILLINGS & SPENCER CO., - Hartford, Conn.

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Absolutely Accurate—

Reads from the *Seat*

An accurate speed and distance indicator is quite as necessary on your AUTOMOBILE as a watch is in your POCKET.

Furthermore, it must be ABSOLUTELY DEPENDABLE under all conditions of heat cold or position. Otherwise a speed indicator is not worth the space it occupies. Isn't that so? You can always depend on

The Warner Auto-Meter

whether you go slow or fast, whether the road is rough or smooth, hilly or flat.

It's the only indicator which is ALWAYS absolutely infallible at SPEEDS UNDER TEN MILES PER HOUR, and any other speed.

It's the only indicator which gives correct readings in ANY POSITION, no matter what the angle of your car.

The Auto-Meter is the only indicator you can READ with certainty, because the dial changes with the SPEED ALONE, and is uninfluenced by the jar of the car.

The Warner Auto-Meter has all these EXCLUSIVE good points—because it is the ONLY speed indicator which is actuated by the same FIXED, UNCHANGEABLE MAGNETISM which makes the Mariner's Compass reliable and dependable FOREVER under all conditions.

No one else can successfully use magnetism to determine the speed of an automobile, though it's the only POSITIVE and SURE way, because there is only just ONE WAY that magnetism can successfully be used for this purpose, and WE HAVE PATENTED THAT WAY.

The Warner Auto-Meter will last a life-time. It's as sensitive as a compass and as SOLID AS A ROCK. It will withstand any shock that your CAR will stand without the SLIGHTEST INJURY and without affecting its ACCURACY in the slightest degree.

We will gladly tell you more about this wonderful instrument if you will write us, and at the same time will send you something every motorist will prize—our

Free Book, "Auto Pointers."

Write for particulars TODAY—don't put it off.

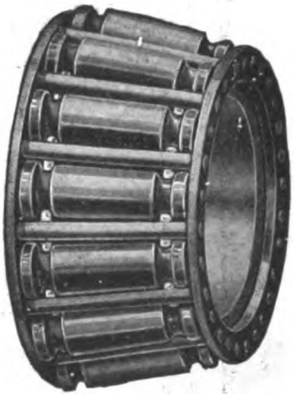
THE WARNER INSTRUMENT CO., 286 Roosevelt Street, BELOIT, WIS.

(The Auto-Meter is on sale by all first-class dealers and at most Garages.)

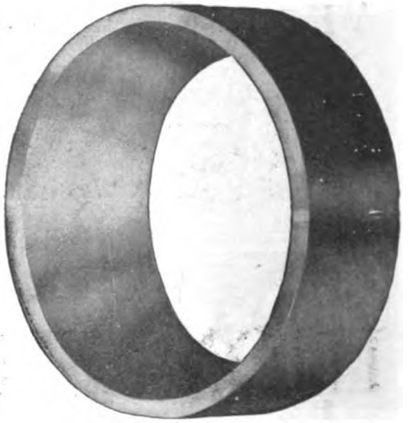
INCREASES THE POWER; REDUCES THE STRAIN



Cone.



Cone and Rollers.



Cup.

THOSE ARE TWO OF THE LARGE PURPOSES WHICH ARE SERVED BY

TIMKEN ROLLER BEARINGS

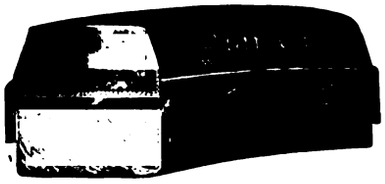
They are such far-reaching purposes as to induce every person about to purchase a car, to discover whether those bearings are applied to it; and if not, why not.

TIMKEN ROLLER BEARING AXLE CO., - - - Canton, Ohio.

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THE SIMPLEST INVENTIONS AND DEVICES HAVE ALWAYS BEEN THE MOST IMPORTANT.

Last week we spoke of the Permanency of the Attaching device of



Diamond
Wire Mesh Base Solid Tires

FOR MOTOR TRUCKS AND COMMERCIAL CARS.

¶Now we want to direct your attention to the **simplicity** of this tire and its attaching device.

¶The tire base, made fast ut wire mesh wound round and round a drum, into which the unvulcanized tire rubber is forced and the whole then vulcanized, is itself al the device employed in attaching the Wire Mesh Base Tire.

¶After the tire is driven on, you bolt on a flange to prevent the possibility of the tire working off the rim sidewise.

¶Could anything be simpler?

¶Compare this with the stubborn, complicated tires for Motor Trucks which require a machine shop and several strong men to get them on or off.

¶Then you'll understand why Wire Mesh Base Construction has been received with delight and used with satisfaction in the field of the Commercial Vehicle.

¶Wire Mesh Base Tires cannot creep or come off.

¶In following issues we want to tell you more about the superior points of Wire Mesh Base Construction.

¶In the meantime we would like very much to tell you our proposition. Will you drop us a line?

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

NEW YORK—78 Reade St.
NEW YORK—1717 Broadway.
BOSTON—174 Columbus Ave.
PHILADELPHIA—304-306 N. Broad St.
BUFFALO—715 Main St.
DETROIT—258 Jefferson Ave.
ST. LOUIS—3966 Olive St.
CHICAGO—1523-31 Michigan Ave.
CLEVELAND—1514 Euclid Ave.
SAN FRANCISCO—
MINNEAPOLIS—503 Second Ave., S.
DENVER—1735 Arapahoe St.



The GOODYEAR
Detachable
AUTO-TIRE
ON
Universal Rim

is so durable yet so lively—so difficult to puncture yet so easy to Repair—that it really

Cuts out Tire Troubles

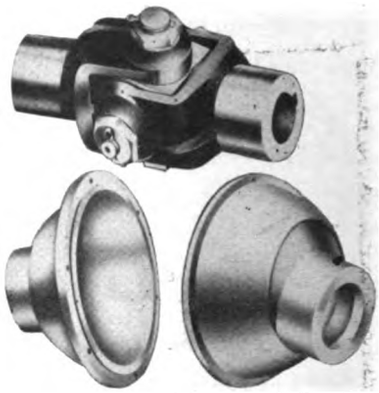
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Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
Buffalo, 719 Main St.
Denver, 220 Sixteenth St.
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The Goodyear Tire and Rubber Co., Grove St., Akron, O.

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HAYNES UNIVERSAL JOINTS.



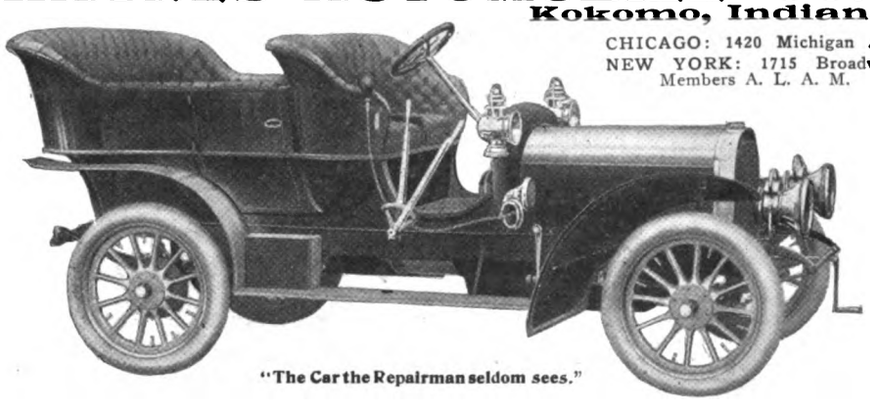
THE Universal Joints in the Haynes car are different in principle from those in common use. Between two drop forged steel forks with broad, flat inner faces, is fitted a flat-faced square steel block, held in position by pins running both ways through blocks and through forks. The driving friction is exerted entirely on the flat inner faces of the forks and surface of the block, no strain whatever being thrown upon the pins. Both forks and block are case hardened.

This construction, found exclusively on the Haynes (and is but one of many exclusive Haynes features), gives a much larger wearing surface than can be obtained on pins, thus reducing the wear. The entire joint is encased in an oil tight housing and packed in grease sufficient for hundreds of miles Haynes roller bearing engines, transmission, sprocket and roller pinion, master clutch and every other important feature is exclusive with the Haynes. It is the car of lowest cost for upkeep and repairs.

The Haynes is the highest powered shaft driven car built. In requesting catalogue, for prompt attention address, desk D. 22.

HAYNES AUTOMOBILE CO.
Kokomo, Indiana.

CHICAGO: 1420 Michigan Ave.
NEW YORK: 1715 Broadway.
Members A. L. A. M.



"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5⅛x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,500 f. o. b. Kokomo. Full equipment.

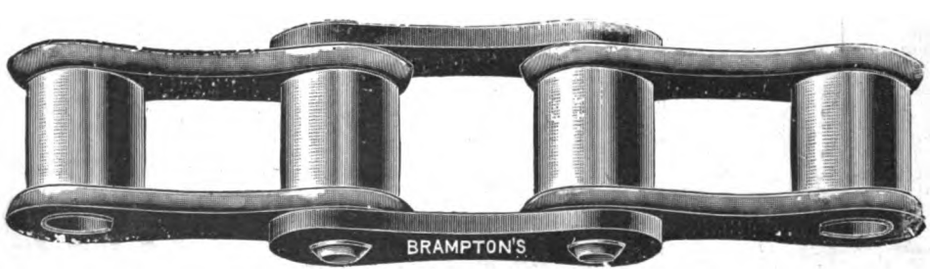
Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs 4¼x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.

POWER

At this stage of automobile development, the power transmission by chain is most popular.
Properly cut sprockets, and the best and strongest chain in the world.

THE BRAMPTON



Which is made of self-hardening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

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The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars. **Special chains to fit Indian motorcycle.**

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Made of best materials properly put together.

Cured in open steam.

Toughening the rubber and making the tire strong and durable.

Call at our factory or any of our branches, and let us tell you all about it.

Catalog mailed on request.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

G & J Tire Co.

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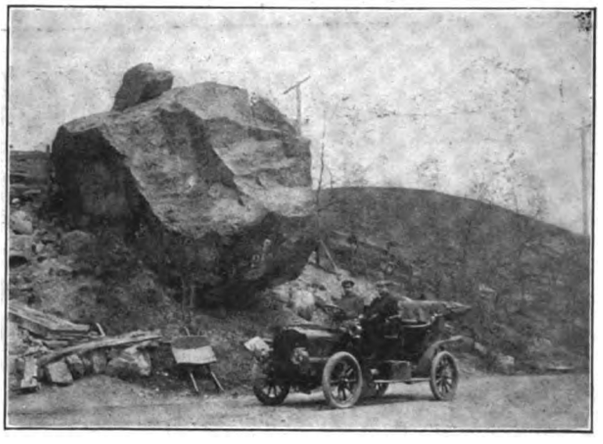
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The Car for Service.



ANOTHER BIG VICTORY ABROAD.

The annual open hill-climb of the Midland Automobile Club held June 16th, the the biggest event of the kind in England, resulted in a clean-cut victory for an 18 h. p. White steamer. The White climbed the hill six seconds faster than any of its 34 competitors which included all the best-known English, French and German cars, the ratings of which ranged up to 60 h. p.

Thus is added another to the long string of White victories abroad which commenced with the winning of the English Reliability Trials in 19.2.

Write for new testimonial booklet.

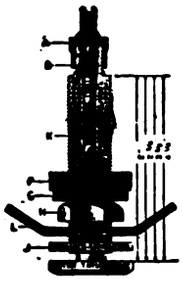
WHITE SEWING MACHINE COMPANY

CLEVELAND, OHIO

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Trademark Registered.



SIMPLE AND ABSOLUTELY AIR TIGHT.

MOTOR TIRE VALVES, as shown in cut, are made in four lengths as shown. Cut is exactly half size of the 2 in. valve.

SUPPLIED TO THE TRADE BY ALL TIRE MANUFACTURERS.

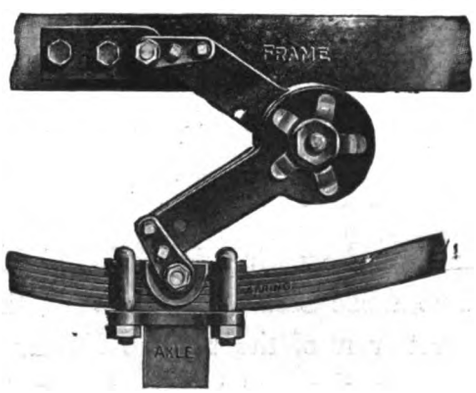
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A. SCHRADER'S SON., Inc., Nos. 30-32 Rose Street, New York

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TRADE MARK



The Pioneer and the best.

You are not getting the most out of your automobile if it is not fitted with the Truffault-Hartford Shock Absorbers

Results have proved that there is NOTHING just as good. All the speed and endurance contests of the last three years have been won by the aid of the Truffault-Hartford.

Increases speed. Doubles life of tires. Prevents breaking of springs. Makes cobblestones seem like asphalt. Prevents lost traction. Saves running power.

ITS MERITS ARE UNQUESTIONABLE.

Adopted by Pierce Great Arrow, Locomobile, Brasier, Peugeot, Napier, Aerocar, Gobron-Brillié, Rossel, Matheson and Studebaker.

NEW MODEL SELF ADJUSTING.

NEEDS NO ATTENTION AFTER APPLICATION.

Cars under 1500 lbs., $40. (*Four Suspensions*)

Immediate deliveries.

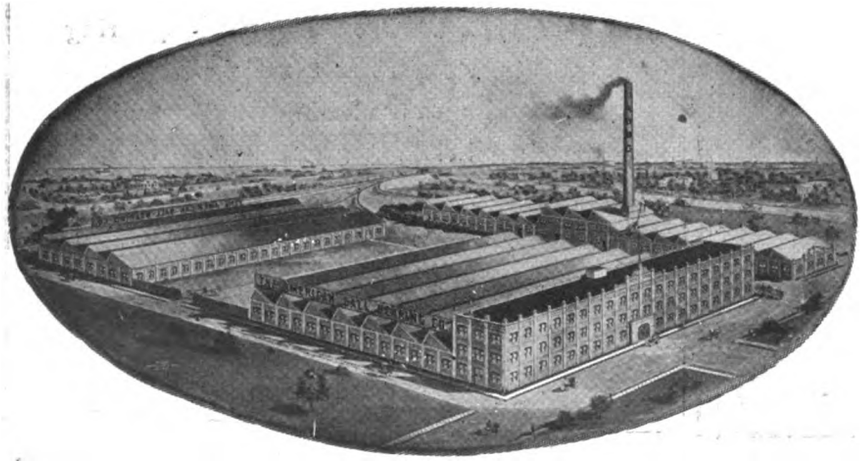
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Cars over 1500 lbs., $60. (*Four Suspensions*)

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We are Sole American Agents for the celebrated COBRON-BRILLIÉ "The finest automobile in the world."



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THE American Ball-Bearing Co.

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Michelin Tires win every important race in the world. A road race is a hard strain on tires, proves their endurance and reliability. Want 'em? Cheaper tires are not cheap.

MICHELIN PRODUCTS SELLING COMPANY, Inc.,

EXCLUSIVE AMERICAN AGENTS

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The Gabriel Horn



is blown by the exhaust of the engine, and controlled by means of a foot lever.

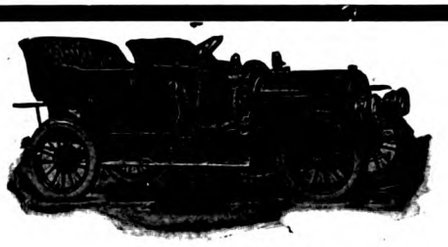
It is out of the way and has no reeds, bulbs or tubes to get out of order.

It is found on the majority of the best cars in the country, and can be attached on any car, launch or motorcycle.

Write for particulars.

GABRIEL HORN MFG. CO.

981 Hamilton St., Cleveland, Ohio



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FAMOUS?

ASK AN OWNER.

ROYAL

Model G. $3500.00 40 H. P.

THE ROYAL MOTOR CAR CO.

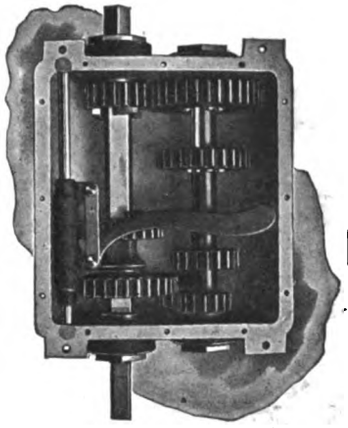
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Now used and endorsed by 52 of the leading automobile and motor boat manufacturers.

Every battery guaranteed to give satisfaction or purchase money refunded.

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POPE Toledo AUTOMOBILES

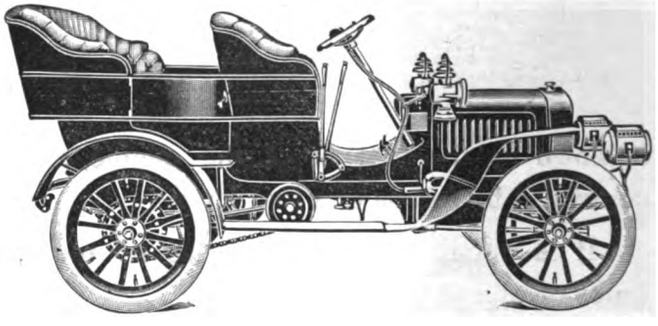
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Type X 20 H.P.
Price $2500

What customers think of the **Pope-Toledo** is shown in the following extract. **"My Pope-Toledo has afforded me unlimited pleasure and recreation. It has been in constant use daily since the time I became its happy possessor.**

"Whilst you have my order for the current superb production of the Toledo Factory, I have no intention of parting with this faithful servant. I propose instead, in recognition of its exceptionally satisfactory condition to equip it with a runabout body and retain it in my service."

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Members Association of Licensed Automobile Manufacturers.

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Mechanically Fastened Pneumatics

HAVE MARKED AN ERA IN TIRE BUILDING.

FIRESTONE TIRE & RUBBER CO.

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SINGLE
FOR LIGHT WORK

HARTFORD

SINGLE and TWIN

SOLID TIRES



TWIN
FOR HEAVY WORK

Note Method of Attachment.

The successful commercial vehicle tire must have its retaining device vulcanized inside the tire, otherwise the attachments rust. The HARTFORD is secure and rust-proof.

THE HARTFORD RUBBER WORKS CO., Hartford, Conn.

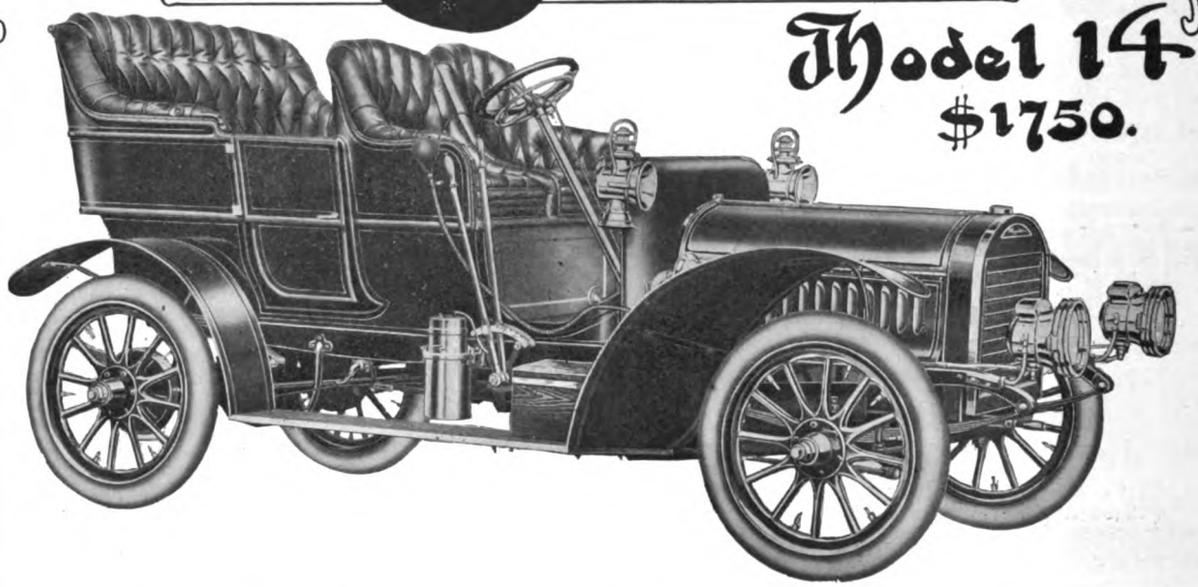
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Rambler

Model 14
$1750.



A medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, July 12, 1906. No. 6

ARIEL'S FLIGHT CHECKED

Unfeeling Sheriff Steps in and "Sits Tight" —Unpaid Wages Starts Trouble.

When, but three short months since, the Ariel Co. left Boston, Mass., for Bridgeport, Conn., it knew not what awaited it. It had thrived modestly and so removed to Bridgeport, where it obtained a bigger plant that it might better expand.

Today a cold, unfeeling sheriff sits at the threshold of the factory and all save the sheriff is still. The machinery does not hum and not a motor grunts—and, worse, there are workmen's wages yet unpaid. It was these non-payments that started the trouble. Then small creditors rushed in and after them came the sheriff. He has been there for several days. There appears small prospect of early relief.

The business was started in Boston by Lewis & Matthews and as their Ariel car incorporated a number of ingenious features it attracted attention and a bright future seemed assured. Removal to Bridgeport appears to have been the undoing.

Reo to Retire Preferred Stock.

Indicating the success of the Reo Motor Co., Lansing, Mich., since its organization, two years ago, it is announced that all the preferred stock of the company is being retired. This amounts to $100,000 and leaves the $500,000 in common stock the entire issue. One of the conditions of the sale of the preferred stock was that it might be retired upon the payment of a certain bonus. Work has just commenced on the two large buildings south of the main factory buildings which are planned to be in readiness for the manufacture of the 1907 product. The new buildings will be 500 feet in length.

Cincinnati Dealers Perfect Organization.

Sixteen of the dealers in Cincinnati, Ohio, got together last week and perfected a reorganization of the Cincinnati Automobile Dealers' Association. Messrs. Shumard, Archey and Neare were apopinted a committee to draft a new constitution and by-laws to be reported at a subsequent meeting. A discussion of trade topics in general was indulged in and the association decided to fix the price of gasolene to users at 18 cents a gallon. The re-formation was completed by electing these officers: President, Joseph Montfort; vice-president, Joseph Hanauer; secretary, Robert C. Crowthers, and treasurer, Sid Black.

Non-Explosive Tank Goes up.

On an execution against the International Non-Explosive Tank Company of 84 Chambers street, for $3,778 in favor of Albert Martinez on an assigned claim of Charles W. Girsch, for money loaned and services as general manager, the sheriff has attached its property at that address. Mr. Girsch was also treasurer of the company, which was incorporated on July 24, 1905, with a capital stock of $250,000, to manufacture a tank for gasolene in automobiles and motor launches which would not explode. The sheriff made a levy and noticed the sale for July 16th, next.

Brandt Becomes a Sales Manager.

E. H. Brandt has been appointed sales manager of the Corbin Motor Vehicle Co., New Britain, Conn.—an appointment that explains his resignation as general roving representative of the Fisk Rubber Co. He, of course, succeeds J. S. Bretz, who will hereafter devote himself entirely to the recently formed J. S. Bretz Company. Brandt says that plans are developing that will next year make the Corbin car more than ever a factor in the industry.

Badger Occupies its Eastern Factory.

The Badger Brass Mfg. Co., manufacturers of the Solar lamps, are now in possession of their recently established Eastern factory on Eleventh avenue near Thirty-sixth street, New York, and the plant is now in full operation. As a matter of course, the depot and salesroom, previously maintained at 11 Warren street, have been discontinued, Manager L. J. Keck having transferred his headquarters to the new factory.

THE TALE FROM THOMAS'S

It has to do with Packing House Scandal and its Effects on Automobiles.

Up in the Thomas factory in Buffalo, N. Y., there is a clever young man whose name is Davis, and whose eye always is open to the main chance. By some, he might be called a "press agent," but however that may be, there seldom happens any event of general interest in which he fails to find some peg upon which to hang the name of "Thomas." Even the "muck-raked" packing house scandal proved no exception to the rule, and from it, the wise one has served to derive no little profit by an ingenious twist of logic, revealing, incidentally, how the Thomas business acumen has wrought to advantage over some of the rival makers.

Of course, it appears to be a far cry from the packing house to the automobile, nevertheless, Davis says, the effect of the recent report sent to Congress already is being felt in the automobile industry in the upholstering departments of the various factories. Many thousands of hides are used annually in completing the upholstering of the cars, and in the better grades of machine, these must necessarily be of the very best quality. In the Thomas cars, for instance, Mr. Davis says that three full hides are used for each body completed. In this way alone the Buffalo plant has consumed more than two thousand hides thus far in 1906.

When the unsavory results of the expert government inquiry were made public several weeks ago, there was an immediate falling off in the consumption of fresh beef. This brought about a falling off in the killing, which resulted in the depletion of the stock of hides in hand, and a slower rate of income than had been the rule up to that time. Soon it became apparent that a scarcity would occur just at the time when the automobile makers were most in need of them to complete their orders for the summer market.

Quick to take advantage of the circumstances, the Thomas people jumped into the market and within a week from the time

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of opening negotiations, two supply houses had been found from which a quantity of hides had been bought on contract sufficient to upholster twelve hundred cars. They were none too soon, however, for within a week it has leaked out that several other makers have been in the market, have been disappointed, and that in consequence, delayed deliveries, and all the kindred ilk of embarrassments face them. Needless to say, however, the Thomas cars will be out on time.

The Supply of Gasolene.

By an official ukase issuing from the Rockefeller stronghold at Cleveland, Ohio, the automobile has been banished. In other words, the Standard Oil Company has sent forth the announcement that it will no longer supply what is commonly known as 74 to 76 degree test gasolene and to the average motorist this is equivalent to telling him to put his machine away in camphor, for the majority are of the opinion that an automobile will not run on any other grade of fuel. It is reported that the action has ben taken as the result of the enormous demand for gasolene of this test and the inability of the company to maintain a supply. It is universally supposed that this grade of gasolene is indispensable to the running of an automobile, and the announcement in question would appear to deal the industry a serious blow. But quite the contrary is the case, for it is stated on good authority that by far the larger portion of the gasolene now in use and that has been supplied for some time past is of 66 to 68 degree test. As most of the garagemen are aware of this they have not taken the announcement very seriously. According to one garage keeper "it looks as if the Standard thought it was about time to take the automobilists into its confidence and let them know just what kind of fuel they had been using all along."

Welcome Wants $200,000 for Damages.

An unusual suit was begun in Superior Court, at Los Angeles, Cal., last week, by A. B. Welcome against Abbott Kinney, the former asking $200,000 damages. Welcome alleges that Kinney contracted with him to conduct a general garage and stabling concern at a beach resort and that in preparation for trade he purchased a large stock of automobile supplies, carriages and various other vehicles. He now alleges that Kinney failed to fulfill his part of the contract and so asks heavy damages.

Big Company to Make Parts.

As a substantiation of a series of periodic rumors to the same effect, it is now authentically announced that the Birmingham Small Arms Company, one of England's oldest and best known houses in the bicycle industry, is about to undertake the manufacture of automobile components, for assemblers.

Detachable Rims Lead to Law.

Detachable rims, which undoubtedly played a most important part in the success of the winner of the Grand Prix, have already served to involve the Michelin Company in a lawsuit, and introduce what promises to be a long and hard-fought legal battle in the French tire industry. At the close of the race, when the winning Renault came in, its tire equipment was seized by baliffs on behalf of Vinet, a firm claiming ownership of the patents covering the use of the detachable rim, and a suit against Michelin, the firm supplying the Renaults, was immediately instituted. As the condition of the race making it necessary for the drivers to change their own tires on the road, proved a source of long delay to most of the other competitors, and the detachable rims carrying fully inflated tires which allowed Szisz to make a change in four minutes, not simply set him ahead in the race, but served to boom the tires most extravagantly, the outcome of the suit is looked upon as having considerable bearing on the future of the tire business, at least in France.

The Week's Incorporations.

Chicago, Ill.—Model Garage Co., under Illinois laws, with $20,000 capital; to deal in automobiles and conduct general automobile business. Corporators—John N. Williams, Clarence W. Williams and Charles L. Tindolph.

Milwaukee, Wis.—Automobile Transit Co., under Wisconsin laws, with $10,000 capital; to conduct automobile stage lines. Corporators—F. G. Rodenbeck, O. L. Blande and Charles Rhode.

Portland, Ore.—F. P. Keenan Co., under Oregon laws, with $10,000 capital; to deal in automobiles and supplies. Corporators—F. P. Keenan, T. H. Gardner and A. T. Lewis.

Hawley Locates in Michigan.

Constantine, Mich., is to have an automobile factory, which will manufacture automobiles under patents said to be owned by R. B. Hawley who also is stated to have been making automobiles for the past five years. The company just formed will be styled the Hawley Automobile Co., for which officers have been elected as follows: President, William L. White; vice-president, H. H. Riley; secretary and general manager, R. B. Hawley, and treasurer, William H. Barnard.

Fire Visits Packard Branch.

For the third time within a month fire visited the establishment of the Packard Motor Car Co., at 1540 Broadway, New York City, on Thursday night of last week. The damage, however, was small, it being stated that $200 will cover the loss. Three workmen who were in the basement at the time of the explosion were burned, one of them seriously. Deputy Fire Chief Langley made a personal investigation and stated that the fire was caused by defective insulation.

In the Retail World.

Irving D. Porter will erect a one-story garage on Florida avenue, near Fourteenth street, Washington, D. C. The building will measure 60x160 feet.

The Imperial Garage Co., of Providence, R. I., have established a branch garage on East Bowery street, Newport. It has storing capacity for fifty cars and as a matter of course, is well equipped. The company is State agent for the Aerocar and Dolson.

Thomas B. Dewhurst has purchased the garage owned by W. T. Muir, at 421 West Main street, Lexington, Ky. It will be used as headquarters for the interurban automobile transit system Dewhurst soon expects to have in operation.

Wells Brothers' Company, of Baltimore, Md., have applied for a permit to erect a three-story addition to the garage at the northwest corner of Charles street and Mount Royal avenue. The improvements will cost $60,000.

Many automobile parties visit Bass Point at Nahant, Mass., during the course of the summer, but previously, garage accommodations have been lacking. To attract summer tourists and to care for them properly after they arrive, Manager Fuller, of the Bass Point House, will build a garage there.

Utah in Financial Straits.

The Utah Automobile Co., doing business at 57 Market street, Salt Lake City, is in a fair way to have a receiver appointed to wind up its affairs. The complainants in the action are the B. F. Goodrich Co., the Hartford Rubber Works Co., and the Warner Instrument Co. The complaint sets forth that the three plaintiffs each secured a judgment against the company some time ago in the sum of $129.71 and costs, on the part of the Hartford Rubber Works Co., $126.75 for the Goodrich Co. and $131.80 for the Warner Instrument Company. The sheriff was unable to collect, hence the application for a receiver.

Joyce Goes to Providence.

James J. Joyce, who has been serving as manager of the American Locomotive Automobile Company's big branch in New York, has been transferred to Providence to acting superintendent of the plant there. Joyce obtained his factory experience as superintendent of the Electric Vehicle Co.

Welch Obtains More Room.

The Welch Motor Car Co., Pontiac, Mich., has found its present factory inadequate to its growing needs. It has rented a nearby factory building in which it will install machinery and run in conjunction with the present plant.

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LOOKS AND UTILITY

Opinions on both Points Coupled with Some Observations Concerning Care.

"Man and Motorman" is the title of an article on the purely aesthetic side of the automobile that is so familiar as to savor strongly of plagiarism, but its author has something original to say on the subject of the ornamental in motor construction, that part may well be forgiven. Mark the "something" for few motorists will agree with all his sentiments on the subject, such for instance that those who motor chiefly for pleasure should deem it better to break down once in a while in a beautiful car than to arrive without mishap at the end of the journey in an ugly thing.

"Give me the ugly-and-get-there-car every time" would doubtless represent the sentiment of ninety-nine out of every hundred. Nor will they fall in line with him when he says he has a good deal of sympathy for people who choose their cars "simply for appearance, and who rather have a machine that looks nice, even if told that its engines are inferior, than an ugly efficient brute of a thing which they are assured will go thousands of miles without a break-down."

In the opinion of the practical motorist such talk savors of the sweet young thing who is taking her first ride in a car. She does so admire the blending of the car's finish and upholstery of the tonneau, and the cushions are "simply lovely," that is, before starting. If the car happens to develop a habit of breaking down at inconvenient times and places, the sentiment forthcoming is more apt to be "Why on earth doesn't the old thing go?" It is something akin to the expression of opinion by the knight of the road who said his preference was invariably for dirt and warmth rather than cold and cleanliness. As to such statements that "the mishap of ugliness is far worse than a choked inlet pipe," they are simply puerile and call for no comment. The day when the automobile is to take its place among the ornaments on the whatnot is still far off. Until then anyone who has anything to do with automobiles will prefer a free inlet pipe and a smoothly working mechanism in other respects to the beautiful curves of Grecian art.

But when he says "Proportion is more often sinned against than outline, and a very important point in the appearance of a motor car is the proportion of the people who sit in it," there are few who will not wholly agree with him. Not that the man who owns a small car must perforce make himself and his guests conform to its size, but that most small cars look like underfed toys when their occupants happen to be adults of normal or slightly more than normal size. "There are many cars which look quite graceful on the show stand, but which look ugly and misshapen as soon as four people take their seats in one of them." This is usually the case with the small cars of six or eight horsepower," he continues, "which nearly always look as if their occupants had outgrown them. It is something akin to a large man sitting in a perambulator. These little cars also look graceful and attractive enough when empty and new, but when they are old and filled with two fat people they look horrible indeed." And this savors so much more of truth than poetry and conforms so closely with the experience of the average observer that it is hardly to be disputed.

"Who has not had the experience when walking or driving on a country road, of hearing a great clattering commotion and seeing a cloud of dust coming up behind, which commotion and cloud of dust resolve themselves into a kind of blood-red tin can on four little wheels, with two men, muffled and swathed, clinging to it—the whole concern traveling at about ten miles per hour? And yet it is only the six horsepower Baby Bouncer, list price $700—the same which attracted so much attention at the recent show, where it stood on a sheet of plate glass, surrounded by silver plated chains and pillars, bearing on its seat a large placard, 'Sold to ——,' the blanks being filled with the names of no end of prominent people.

"But it is very strange how very rarely one sees a really nice looking motor car on the road. Most of the cars on the road are ugly in themselves, and most of those that are not ugly in design are made ugly by neglect or carelessness on the part of the owners. Any person who, owning a carriage, should drive about with the wheels and body covered with ancient caked mud splashes, the metal work dull, harness shabby and mended with a piece of string, and a coachman unshaved, wearing a great untidy coat, from the wide sleeves of which protruded dirty, ungloved hands, would be the laughing stock of his neighbors and the world immediately round him. Yet the equivalents of these sins are committed every every day by scores of motorists who could afford to know better and ought to act better. The utility of the motor car is now admitted on all sides; in fact, it has been so much insisted upon that it is time the ornamental side of the matter was given some study," he goes on, and there are many who will agree that this indictment is a true bill.

"Truly the cars that stand the test of the road in the matter of appearance are far fewer than those that stand it in the matters of strength and efficiency. In actual design there has been a great improvement in the last year, and it is chiefly due to the use of side-entrance bodies and an extended wheel base. The lines of a motor-car ought to indicate swiftness; and to do this their general trend should be horizontal rather than vertical. That is why the little car looks all right when it is empty, and all wrong when its horizontal line is broken by large upright human figures sitting amidships in it. The only very small cars that look well when they are occupied are the little 'De Dions,' or, rather, such of them as have a specially large two-seated body and a hood; because their line people take their seats in one of them. ual upward sweep to the heads of the people and the back of the hood. The occupants are not excrescences in it, they are part of the design; but when the line, starting level from the bonnet, goes on level until it reaches the occupants, and then has to climb vertically up to their heads and vertically down again to the back of the seat, and continue level again until it abruptly ceases, there is nothing but ugliness; and that is why length in a car adds so much to its appearance. The upper line should rise gradually to the rear of the car, and be finished off thence in a graceful curve down to the back hangers and the wheels; the back seats should be high enough to come right up to the neck of the occupants, and the front seats only a little lower. You then get the gradual rise in outline. I have indicated, and this is the only outline which satisfies the eye in a thing meant for travel and speed.

"But, as I said, even the cars that are well designed hardly ever look well on the road. Many cars are washed only once a week instead of every day, and are brought round to the door, either covered with caked mud, or else with the paint dull and sticky, and ready to collect the first particles of dust that are blown upon it. It is all a matter of discipline in the motor house; and if owners would insist on their chauffeurs keeping their cars clean themselves instead of leaving them to the tender mercies of a stable-helper, there would be less heard of unmanageable chauffeurs and one would see more respectable cars. The only thing that a stable-helper should be allowed to do to a car is to hose the wheels and the body; and that, in fact, is all the cleaning that a car should have. The rest should be polishing. There are only two implements necessary for keeping the carriage part of a motor car in perfect condition—the hose and the wash leather. But, unfortunately, the garage attendants are not graduates of the stable or carriage house; they are mechanic's helpers. Until the mechanical expert presides over the mechanism and the well trained jehu over the body the millenium in the matter of looks and service will not be reached."

To Compile World's Trade Directory.

A work that undoubtedly will prove of great benefit to the trade has been started by the American Motor Car Manufacturers' Association in gathering data for a complete list of automobile dealers and garages in America. It will include not only the American tradesmen and the names of the cars they handle, but also those of foreign countries.

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Status of the Garage.

One of the many legal points that the widespread adoption of the automobile has raised, none has become more pressing for an answer of late than the status of the garage. Is it a nuisance per se, or does it only become such when improperly conducted without consideration for the rights of those who are compelled to endure its presence? It is a query that both the garage proprietor and the residents of exclusive neighborhoods are anxious to have passed upon by the courts, both in the confident expectation that it will result in their favor. The fact that a business need not be of a noxious or objectionable character in itself in order to constitute a nuisance, but that any legitimate calling may be conducted in such a manner as to come under this category has long been firmly established. There are long lines of decisions on both branches of the subject extending over several centuries, the status of each new calling having been passed upon as the necessity for it arose.

Thus, soap and glue factories, tanneries and establishments of a similar nature, raise no question on this point when an attempt is made to locate them in the midst of a good residential district. But in their proper sphere, even they are not catalogued as nuisances. It depends entirely upon all the surrounding circumstances and the latter govern the classification of an endless list of calling the status of which rests wholly upon the manner in which they are conducted. On which side of the fence the garage is to find itself is a question. If it be declared to constitute a nuisance per se, it may be ousted from its location in any good residential district the inhabitants of which object to its presence. If it be not, negligence and lack of regard for the rights of others must be proven. Since the interesting "half pint" decision of a New Jersey Chancellor, which not alone declared a garage to be a nuisance, but enjoined its proprietors from storing cars with more than half a pint of gasolene in their tanks and threw in permission to the petitioners to interfere with the business of the establishment "at all reasonable times" to see that the decree was enforced, was promptly overruled by a higher court, there appear to have been no further cases of this kind. Now the residents of that reputedly frigid section of the Hub, known as the Backbay district, are up in arms over the same question. It seems that a building intended for a garage has been quietly erected in the very midst of that "swell belt" and the entire district is joining in a petition setting forth their objections to the "lowering of this purely residential neighborhood." Though a decision adverse to the garage proprietor would be of no force as a percedent in other States, the outcome will be looked forward to with interest.

Hope for the Sport.

The organization in Chicago of the Western Motor Racing Association with Barney Oldfield as its shining light and with the avowed intention of promoting a circuit of race meets on trotting tracks, is more suggestive and holds more promise than appears on the surface.

It recalls that this has been an unfruitful year in the matter of automobile racing. Meets in this, the most populous part of the country, have been few and far between as compared with previous years; and the reasons are not far to seek.

Though the world loves speed and will go far to see it or to indulge in it, mere speed is not in itself sufficient to hold public interest. Excitement, which means close finishes, is necessary if any sport is to become enduringly popular. Close finishes have been so rare at automobile meetings that they may be said not to have existed.

The great sports loving public has time and again paid its money to satisfy a craving for excitement and has been fooled or disappointed so consistently that it is small wonder that where automobile race meets once were most frequent—New York, for instance—they now are no longer held. The public tired of the runaways and processions which were served up to them. They were parodies on sport. The promoters were not to blame. It was the racers themselves who were responsible for the undoing.

Despite croakings to the contrary, the motor car having the speed has the first essential of high class and thrilling sport. Given men who will race as men race in other sports, bumper houses would be the rule. In his barnstorming expedition this year, Oldfield and his mates have shown the way. Oldfield has almost invariably proven the victor but he has drawn the finishes fine and aroused the spectators. He has not attempted to see how far he could run away from the other fellow. He has raced with his head as well as with his hands, which is as it should be. He knew that he possessed the fastest car and drove accordingly. He held his rival safe and "came away" and won at the proper moment. It was not necessary for him to go all the way. He did exactly what the best man or the best horse does when in competition. It is not faking or hippodroming. It is racing—real racing—the sort of racing that people want and pay to see.

We have harped on the point many times in the past. We refer to it again, because the organization formed in Chicago is composed chiefly of professionals. Racing is at least a part of their business and when this is the case, men usually give the public what it wants; their livelihoods depend on it. If the movement develops a few "heady" racing men as against mere skillful steersmen and reckless throttle openers, automobile racing may yet become a real sport and not prove a burlesque of the term.

Concerning Clutch Design.

Clutch design, along with engine design, has been one of the greatest stumbling

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blocks which the motor car builder has had to surmount. The peculiarities of the internal combustion motor made necessary the employment of some sort of change speed mechanism, and in order to introduce this factor, and at the same time, to provide a means of starting and stopping the car without at the same time stopping the motor, the use of the friction clutch was brought about. In its earlier forms, it had the saving grace of comparative simplicity, and little more. It required most skilful manipulation in order to secure even passibly moderate action, its condition had to be preserved in an almost ideal way, else violent plungings were the result, and the contact surfaces depreciated rapidly whenever it was attempted to handle the car gently.

Considering the theoretical conditions which must be fulfilled by an ideal device of the sort, and wholly apart from past or present methods of securing them, it appears that the action of the organ may be divided into three distinct functions, engagement, disengagement and acceleration. When a clutch is to be constructed, each of these conditions must be regarded with due respect to its relative importance in the action of the machine, and a fourth consideration must be added to them, in the shape of certain purely mechanical requirements, applicable in general to any mechanical movement, yet more or less distinctive in themselves.

In complete engagement, the clutch must approximate as closely as possible the transmission of a continuous shaft. That is to say, there should be no frictional losses between the driving and driven members, there should be no relative movement between them, the power of the device should have a minimum, at least, equal to the maximum power of the motor, and the connection should be entirely independent of the speed of the motor. Just the reverse of these conditions apply to the condition of disengagement. For it is evident that when declutching has taken place, there should be no connection whatever between the two elements.

The condition of acceleration, must in theory, effect a compromise between the conditions of the other two. It should bridge the gap, and merge the condition of rest into the condition of motion. And it is just here that practically all clutches fail of their purpose to a greater or less extent, for the simple reason that their action is differential and progressive, depending on friction, to which nature is distinctly opposed, and which is distructive invariably. In starting the car, the action should be without shock to the mechanism, even to the least perceptible degree, the rate of acceleration should always be under the operator's control and should be variable up to the limit of the most rapid start possible without violent shock, and finally, the method of manipulation must be sufficiently simple so that no great amount of skill or tact will be required to secure all of the desired results. The last clause savors of the mechanical element, perhaps even quite as much as of the purely theoretical.

Summarizing the kinematical requirements as briefly as possible, the ideal friction clutch should embrace the fewest possible number of parts, which should be simple in their nature, so constituted as to be free from wear, unlikely to become deranged, readily accessible, and not expensive to construct. They should be put together with due regard to the value of the interlocking principle, should be amply strong, and free from thrusts, either external or internal, both in the conditions of driving and relaxation, and also during the transition period of acceleration.

When all of these requirements are set down side by side and compared with regard to their mutual relation, it becomes evident that at best, the friction clutch must be responsible for a series of actions embracing a mass of contradictions. Compared to the discouraging results of this survey, it appears that the average clutch does very well indeed, yet, on the other hand, it is by no means all that it should be. A compromise at best, and a wasteful mechanical movement, it yet is capable of considerable improvement beyond a doubt. Just in what way this may be brought about, may not be apparent at present. One line of possibility has been developed in another part of this issue.

Law as it is Dispensed.

Conceived in bigotry and fostered by prejudice, laws regulating the use and very existence of the automobile frequently overstep the bounds of justice and right and their enforcement in the lower courts has long been a notoriously one-sided affair in which the motorist is seldom given any alternative but to help swell the town treasury. Their interpretation has not been marked as a rule by that broadmindedness of view that ever seeks to further the purpose and spirit of the statute rather than its letter. On the contrary, they have one and all, been construed with a literal adherence to their prohibitive provisions that would do credit to a country prosecuting attorney whose cases are few and far between and whose only object in life is a conviction at any cost.

Anti-automobiling prejudice has run rampant to such an extent that its constant calls for something more drastic than the last has resulted in such statutes superseding one another so rapidly that few of them have ever attained the dignity of having been passed upon by the courts of last resort in the state of their origin. Until this form of correction has been administered it is probably too much to expect that the current course of affairs will change radically of its own accord.

In the face of such a situation, what is more surprising than the recent decision of a New York City magistrate that veers so far to the other extreme as to render the statute a meaningless rigmarole, could such an absurdity be considered good law. He decided that as a 15-year-old boy who had been arrested for speeding and violating the rules of the road in traffic, was not a chauffeur and was driving his father's car there was no provision of the existing law under which he could be punished for driving without a license. In other words, as the car belonged to his father it belonged to the boy, hence, the boy was an owner and as such did not require a license. Self-congratulation on having so successfully interpreted the law to his own satisfaction must have pleased the magistrate so much that he overlooked the matter of reckless speeding on the wrong side of the road altogether.

This latitude of interpretation that jumps from one extreme to another appears to be characteristic of automobile legislation. There is no middle ground. That tender solicitude that surrounds the felon lest he be declared guilty while there is yet a loophole for him to squeeze through to freedom, gives way to stern reprimand when the mere misdemeanant who has committed his crime on four wheels stands before the bar. Either the judge's foot is placed in one of the pans of blind justice's scale and the automobilist is called upon to restore the balance with his coin, or the blindfolded dame with the sword and scales is not taken out of her closet at all.

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PERCY PIERCE COMES HOME

Talks Interestingly of the Herkomer Tour and Hill Climb and of his Arrest.

"Home again and mighty glad to get back," was the greeting of Percy Pierce, as he stepped down the gangplank of the steamer Majestic, Thursday last, after his return from Germany, where he participated in the Herkomer tour and was in danger of imprisonment for running into a drunken farmer, while returning from Munich after the contest.

Tanned by the sun and winds of land and ocean, last year's Glidden trophy winner looked all undaunted by his recent experiences and he grinned as he related his experiences in far Wertheim.

"It cost me $750 to get out of the scrape," he said, and added, "It was a sort of bail they asked me to put up. The court has the money, and he will apportion it as he sees fit. The drunken driver of the wine cart may get some of it for salve and part of it may go to the burg as a fine. I didn't wait to see what they would do with it. There was talk that I might have to wait six or seven weeks and that there might be a jail penalty, so I was not anxious to linger around and hear the outcome. I just jumped out as soon as I got the chance."

"What do you think of the Wertheim jail?" he was asked.

"Wasn't that the limit?" replied Percy reminiscently. "It was Friday night and the 13th of the month, when the accident happened, so the jail was not so unexpected a finish. They told me they would take me to the hotel, but instead they took me to the jail. I slept all right, they gave me a bed. But first they took me around a few hours looking up witnesses. You know everybody over there carries a dirk about a foot long. The officers had revolvers, too, but they made me drive back to the place where they came from to get their rifles. Then, with me and my chum on the front seat and the gendarmes with swords, revolvers and rifles on the back seat, they felt safer. They made me pay for the carriage that carried me to jail"—with an intensified grin.

"How about the man that was hurt?"

"Oh, he was around before I left. He was a sight, though, for a few minutes. He was sitting in the back of his wine cart, and the casks fell all over him. He had a jag besides, and so did the owner. One was sitting in the back and the other was in the driver's seat, but both were under the influence. Nobody was driving. It was about 8 o'clock in the evening. We picked him up and Artie put a bandage on his head. He tore it off, and tore off three more bandages we put on him and then they said we tried to run away. The law required that the owner shall stop when an automobile sounds its approach, and shall stand by the horse's head, but he did neither. I tried to pump that into the court, but they would not see it. I had a time, not being able to speak a word of the language. I would be brought into court, the judge would jabber something at me, then the officer would tap me on the shoulder and take me away.

"They bore down on me the harder because another American had killed a man there, and had got ugly and refused to pay a small compensation which would have been a small fortune to the widow. He skipped out of the country. So when they got hold of me they made me pay my fine and that of the other fellow.

"The worst of it was I lost the sale of my car. I was on my way back to deliver it to the buyer in Munich and was within 50 miles of delivery when the accident happened.

"The American Consul was a good fellow in helping me to find out what was to be done, but I had to paddle my own canoe for the most part. I got myself out of the scrape the best I could, and let me say right now that Germany is a good place to get out of if you get into any automobile accident. It doesn't make any difference how negligent the local fellow is, the officers and courts will see that you get the worst of it."

In speaking of the Herkomer contest itself, Pierce confirmed the report that he had received honorable mention and a gold medal for his performance in the Herkomer tour, even though he was not numbered among the first ten prize winners. German cars and drivers received all of the prizes, Dr. Rudolph Stoess winning first prize with an 18-20 horsepower Horch. Mr. Pierce says this was due to the fact that the tour was a handicap affair throughout, the cars being handicapped on a basis of cylinder volume. He finished with a perfect score, but was outpointed on the handicap basis and in the speed contest and the hill climb.

"I finished not only without having a breakdown but without having put a wrench to my car and without putting a pump to my tires," he said. "I never even so much as inspected the adjustments, and I did not put water into the radiator until after the speed contest. Now, if you can find a more perfect score than this I would like to know what it is. In the speed contest my speedometer showed that I averaged a little more than 48 miles an hour, over a wet macadam road, carrying four passengers. The unofficial timers, newspaper men, confirmed this. Under the handicap I was required to make only 43 miles an hour. In the official figuring, however, I was credited with only 37½ miles an hour, and therefore lost points.

"On the hill climb the rule was that a yellow flag meant accident and required a full stop. I was yellow flagged at a turn and learned that the officials stopped me to ask about an accident below. I lost four minutes, and two German cars passed me. How is that for luck? However, I did as well as any one possibly could, and I learned a lot and am satisfied."

To Meet Gliddenites and Climb Crawford's.

To greet the Glidden tourists upon their arrival at Bretton Woods, N. H., is the purpose of the tour that has been called by the Bay State Automobile Association, in conjunction with the Long Island Automobile Club and the New York Motor Club, beginning at 10 a. m., July 24, from Fifty-fourth street and Broadway, New York City. From New York the tourists will journey to Waterbury, Conn., arriving there on the night of the 25th, and reaching Boston on the following night.

At Boston, the Bay State Automobile Association will take charge of the tour and the first day's destination will be Newcastle. On Friday, the 27th, they expect to arrive at Bretton Woods to extend a welcome to the Gliddenites on the following day. Sunday, of course, will be spent at the Woods, and on Monday the annual White Mountain hill climb will be the feature of the day.

Each entrant in the run will receive a gold souvenir and those who start and finish the tour in accordance with the rules will be presented with a Bay State A. A. parchment certificate. After the carnival at Bretton Woods it is proposed to take an additional tour in the White Mountains, leaving August 1st. The destination will be Portland, Maine, where it is said the Automobile Club of Maine is arranging a little celebration. From Portland the tourists will return to Boston and New York.

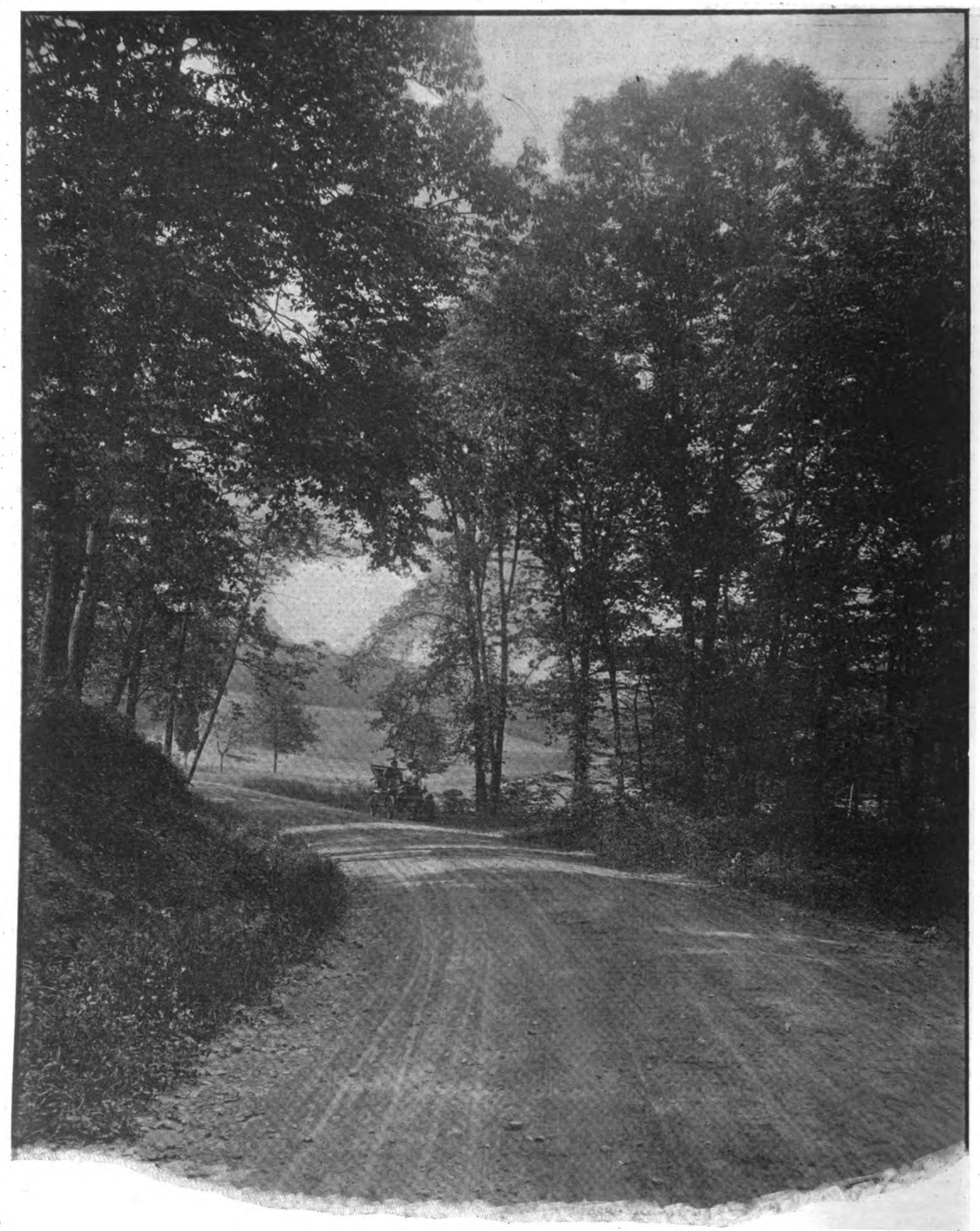
Following is the program of events that has been arranged for the climb up White Mountain, through Crawford's Notch, on July 30:

Free-for all, including racing and stripped cars; stock cars costing $850 or under; stock cars costing over $850 and not more than $1,250; stock cars costing over $1,250 and not more than $1,750; stock cars costing over $1,750 and not more than $2,250; stock cars costing over $2,250 and not more than $3,000; stock cars costing over $3,000 and not more than $4,000; stock cars costing over $4,000 and not more than $5,000; stock cars over $8,000; light weight class, 551 to 881 pounds; heavy weight class, 1,432 to 2,204 pounds

To Satisfy French Suspicions.

With characteristic national prudence in guarding the interests of its very own, a committee of the A. C. F. has decided that the rules and regulations of all contests organized by foreign countries hereafter shall be examined by the competition committee and a notice of approval or rejection issued to all French makers. One condition of the approval is that the club organizing the event shall permit the A. C. F. to appoint a representative who shall look after the interests of the French entrants.

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THE CAR FRAMED IN A CHARMING SETTING.

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CHICAGO'S TWO-DAYS' MEET

Some Good Sport and Several Surprises—Ellis Talks of a "Deal."

Chicago, July 4.—Ollie Savin, driving a 50 horsepower Thomas car, won the fifty-mile endurance contest on the Hawthorne track here yesterday afternoon. Savin finished the distance in 1 hour, 6 minutes and 19 seconds, which was announced as a world's record for fully equipped touring cars. Five thousand spectators in the grand stand, paddock and field, shouted and cheered at the end of the performance.

The accomplishment was in the first event of the two days' race meet promulgated by the recently organized Western Automobile Racing Association. Nine cars started in the fifty-mile event. At the twenty-five mile mark, Savin was leading and continued in that position until the pistol announced the finish of the race. W. W. MacDonald, at the wheel of a Columbia, finished second, and O. C. Friend, driving a Mitchell, was in third place, when the race was called off.

Naturally, the star or so-called star, of the meet was Barney Oldfield and his Peerless "green dragon." When Oldfield came on the track he was the cynosure of all eyes. Oldfield, Coey, Jerry Ellis, A. C. Webb, "Paul Albert, Etc.," and H. W. Freeberg were entered in the Illinois Sweep stakes at three miles, three heats of which were run off yesterday. C. A. Coey, "Thomas Tornado," and Jerry Ellis, Frayer-Miller, contested the first heat, Coey winning out easily in 4:24⅘. A. C. Webb and "Paul Albert, Etc."—Oldfield's young helper with a penchant for foreign and high sounding names—lined up for the second heat. Although Albert, apparently, has given Oldfield some close brushes in track races this season, he was no match for the redoubtable Coey, the Chicagoian winning out with consummate ease. The time was 4:05.

The fastest race was the third heat between Oldfield, driving his Peerless, and a Buick with H. W. Freeberg up. It was nothing less than child's play for Oldfield, and Freeberg soon faded away in the distance. Oldfield was enthusiastically cheered when the time was announced as 2:53⅗.

Mitchell cars scored heavily in the three lap races for fully equipped touring cars listing at $1,000 to $2,000. The Mitchells finished first and second, with a Buick running third, but they were disqualified on a technicality, the drivers having neglected the formality of putting on the hoods. C. M. Betts, Mitchell, and W. W. MacDonald, Columbia, were among the also rans.

A. C. Webb, at the wheel of a Premier, won the five-mile free-for-all from scratch in clever fashion. Ollie Savin, Thomas, with 45 seconds handicap, finished second, and Fred Good, also on a Thomas, with a lead of one minute, crossed the tape third. The time was 5:38.

Oldfield made an attempt on the world's record, but at no time were the national marks endangered. The first mile was done in 1:01⅘, the second in 1:02⅕ and the third in 1:02, making a total of 3:06.

The second and final day's races will be run this afternoon, the principal events of which are the final heat with a $2,000 free-for-all, and the 100-mile endurance contest for which 14 stock cars have entered.

The following is a summary of yesterday's events:

Fifty-mile endurance contest for fully equipped touring cars—Won by Ollie Savin, 50 horsepower Thomas; second, W. W. McDonald, Columbia; third, O. C. Friend, Mitchell. Time, 1:06:19. Also ran—A. C. Webb, Apperson; George Crane, Knox; J. H. Osgina, Stevens-Duryea; Frank Sweigert, Haynes; George Good, Thomas, and W. H. Hoops, Jr., Cadillac.

Three-miles for fully equipped cars listing between $1,000 and $2,000—Won by O. C. Friend, Mitchell; second, G. V. Rodgers, Mitchell; third, W. R. Willett, Buick. Time, 5:46. Also ran—C. M. Betts, Mitchell, and W. W. McDonald, Columbia (Mitchell cars disqualified on technicality).

Five-mile handicap, free-for-all—Won by A. C. Webb, Premier (scratch); second, Ollie Savin, Thomas (0:45); third, Fred Good, Thomas (1:00). Time, 2:38. Also ran—Jerry Ellis, Frayer-Miller (0:30); C. A. Coey, Thomas (scratch); W. N. Endicott, Moline (1:00); H. W. Freeberg, Buick (0:15); H. B. Holmes, Maxwell (1:25), and George Good, Thomas (0:45).

Three miles free-for-all, Hawthorne sweepstakes—First heat won by C. A. Coey, Thomas; second, Jerry Ellis, Frayer-Miller. Time, 4:24⅘. Second heat won by A. C. Webb, Premier; second, Paul Albert, Peerless; second, H. W. Freeberg, Buick. Time, 2:53⅗.

Three miles against time—By Barney Oldfield, Peerless. Time by miles: 1:01⅘, 1:02⅕, 1:02. Total, 3:06.

Chicago, Ill., July 5.—Were it not for the fact that the laiety was so unsophisticated, the second day's racing at Hawthorne track yesterday afternoon, promoted by the Western Automobile Racing Association, organized solely for the purpose of enabling Barney Oldfield and a few others who stand in on the game, to corral a few extra dollars before the sport of automobile track racing is entirely done away with, might have been a dismal failure. As so proved, however, the crowd of fifteen or twenty thousand people bubbled over at the sight of Barney Oldfield and other stars and the unusual close finishes that developed in each heat.

Some light on how the meet was run was shed by Jerry Ellis, the well-known Chicago dealer, who is credited, in a Chicago paper, with saying.

"Did you know I was in on the race meet at first? I was, and it was divided, as to putting up money, Oldfield and Pickens putting up $750, and I was to put up $350. Each was to get a share of the profits. When Harlem track was found in bad condition and could not be leased, Pickens secured Hawthorne track and took in S. S. Gorham, leaving me out of it. A sanction was obtained and then they wanted me to race against Oldfield driving the 'White Streak,' but Oldfield would not agree to it, for some reason or other. What proposals were made I won't say, but I can say, that the finish of automobile racing is in sight, if such palpable jockeying is continued. The 100-mile race was run for a purpose, and the driving of Oldfield was plainly a hippodrome. The three A's that control racing should put a stop to such proceedings, for they are a disgrace to the motor game. The only square racing was done by the dealers. It is strange that these governing bodies don't insist on clean sport."

The race which delighted the immense crowd but which disgusted those who knew the trend, was the final of the Illinois sweepstakes, for $2,000, run in separate heats. The heat arrangement was peculiar, anyway, one of them going five miles and the other only three. In the first of the final heats Oldfield ran against A. C. Webb, Premier, for five miles, beating him. Then Oldfield lined up against C. A. Coey, Thomas, for a three-mile heat. He defeated him also.

The so-called Hawthorne Endurance Derby, at 100 miles, was won by G. V. Rogers, who drove a Mitchell runabout. A mishap when the race was three-quarters over gave Rogers his chance and he improved it, gaining the lead at eighty miles and holding it to the end, covering the century in 2:25:21. Otis C. Friend, driving a touring car of the same make, was second, and W. H. McDonald, Columbia, third. Fred Good and his Thomas car, started off with a rush in the century and apparently had the race well in hand when a rear tire exploded, causing him to lose twelve miles. Then the Columbia, with McDonald at the wheel, crept up past the Haynes, passing in at the twenty-seventh mile and maintaining the advantage until the seventy-fifth, when a stop was made for gasolene. This is where the Mitchell cars got the advantage.

Perhaps the most exciting incident of the meet was when H. W. Barnes drove a Tincher car—a Chicago product—through the fence in the Corrigan sweepstakes, a five-mile free-for-all. The left front tire blew up and Barnes went through the fence on the back stretch as if it were paper. He was not hurt, but the incident gave the crowd the only thrill they received during the afternoon. The event was won by A. C. Webb, Premier, with C. A. Coey,

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Thomas, second. H. W. Freeberg, driving a freak Buick of his own construction, finished third.

Mitchell cars scored again in the three-mile event for cars listing between $1,000 and $2,000, beating out two Buicks. The summary follows:

One hundred miles, for fully equipped stock cars—Won by G. V. Rogers, Mitchell; second, Otis C. Friend, Mitchell; third, W. H. McMonald, Columbia. Time, 2:25:21.

Three miles, for cars listing at $4,000 and under—Won by W. R. Willett, Buick; second, A. D. Kennedy, Buick. Time, 5:18⅗.

Three miles, for cars listing between $1,000 and $2,000—Won by Henry J. Meister, Mitchell; second, W. R. Willett; third, W. J. Mead, Buick. Time, 4:58⅕.

Three miles, for cars listing between $2,000 and $3,000—Won by J. H. Osinga, Stevens-Duryea; second, V. G. Williams, Royal. Time, 4:30.

Five-mile handicap, for Chicago dealers—Won by W. N. Endicott, Moline (1:10); second, C. A. Coey, Thomas (scratch). Time, 6:10.

Five miles, free-for-all, Corrigan sweepstakes—Won by A. C. Webb, Premier; second, C. A. Coey, Thomas; third, H. W. Freeberg, Buick. Time, 5:55.

Final heats Illinois sweepstakes—First heat (five miles) won by Barney Oldfield, Peerless; second, A. C. Webb, Premier. Time, 5:27. Second heat (three miles) won by Barney Oldfield, Peerless; second, C. A. Coey, Thomas. Time, 3:14⅕.

Two Events at Indianapolis.

Two automobile races, each of them a handicap, formed an interesting part of a varied program of events that amused Indianapolis people on July 4. The races were run on the Fair Grounds track and each was three miles, with three starters in each. Two Marmon cars, of thirty and twenty-four horsepower, driven respectively by R. J. Irvin and H. E. Emeis, were given an eight of a mile start on the six-cylinder Ford, driven by Cecil Gibson. Irvin's car finished first and Gibson's second. In the next races, Gibson, despite the heavy handicap, managed to cross the tape first, and he held the spectators in breathless suspense as he took the turns at full speed. Irvin finished second and Emeis was again last. The time was not announced.

Motorists of Norwalk, Conn., met on Saturday night last and launched the Norwalk Automobile Club. The organization starts with a membership of twenty-seven, who elected these officers: President, Colonel E. H. Mathewson; vice-president, General Russell Frost; treasurer, C. L. Baker; secretary, Leo Davis.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. * *

BIG CROWD AT MILWAUKEE

Sees a "Native Son" Trounce Oldfield—But Oldfield Beats Albert, his Side-partner.

All Milwaukee motordom, not to mention a great crowd numbering close to 8,000 persons, traveled to the State Fair park, Saturday, last, 7th inst., to witness the first annual race meet promoted by the Milwaukee Automobile Club. The favorable weather, the large and enthusiastic crowd, and the exciting races made the inaugural meet one that long will be remembered by Wisconsinians. While the track was a bit dusty, it was in good condition and good time was averaged.

The first event down for decision and, in truth, the chief one of the afternoon, was the fifty-mile for stock cars, which was won by G. V. Rogers, of Racine, who drove a Mitchell. The time was fast, Rogers covering fifty laps in 1 hour 4 minutes ⅘ seconds. Although the event was elongated the interest of the spectators was maintained, albeit there were only two finishers—the Mitchell and a small Cadillac, driven by August Jonas—of six starters. At the crack of the gun the Mitchell took the lead but in the second mile Barney Oldfield, at the wheel of S. M. Becker's—Milwaukee's mayor's—Pope-Toledo, overhauled, passed and soon was leading by a comfortable margin. George L. Odenbrett, driving a Merkel, was running third. Ten miles was covered in 13 minutes, with Oldfield leading the field and Clyde Leppo running second. At 20 miles the positions were unchanged and the time was 26 minutes. One of the rear tires of Oldfield's car burst during the 24th mile and he was compelled to stop to replace, which cost him ten laps, the Mitchell car spreadeagling the field soon after Oldfield's mishap and leading until the finish. When Rogers crossed the tape, or rather shot under the wire at the end of the half-century, all the other cars with the exception of the Cadillac, were out of the running. Rogers' car is the same machine that won the 100-mile race at Chicago last week.

What might have been one of the features was the sweepstakes for a purse of $1,000 in gold, said to have been put up by Mayor Becker. The reason it was not was because it was too much on the hippodrome order. There were only three entries—Oldfield, Peerless; "Paul Albert, Etc.," Peerless; and H. W. Freeberg, Buick, and the race was assimilated into two heats, Freeberg and Albert going together, the winner to race Oldfield. Fancy calling this sport! But the climax came when, Albert having qualified in the first heat, in the final Oldfield let him lead until the last hundred yards or so and then came on and won. The majority of the public was not "wise" so they cheered uproariously, but as the identical thing has happened in the last dozen races in which Oldfield and Albert have competed, it seems passing strange.

Bert Nelson, driving a Pope-Toledo, took the lead from the crack of the gun in the five-mile open for cars listing at more than $2,250 and was never headed, finishing under the wire a quarter of a mile ahead of Clyde Leppo's Rambler. Ed Prye, Buick, was third; Leppo, however, had his inning in the event for cars listing between $2,000 and $3,000, covering the five miles in seven minutes. Bert Nelson, Pope-Toledo, won the five-mile handicap and Walter Davidson the five-mile event for motorcycles. Following are the summaries:

Fifty miles, for fully equipped stock cars—Won by G. V. Rogers, Mitchell; second, A. Jonas, Cadillac; third, Barney Oldfield, Pope-Toledo. Time, 1:04:00⅘.

Five-mile handicap, free-for-all—Won by Bert Nelson, Pope-Toledo; second, H. W. Freeberg, Buick. Time, 6:03.

Five-mile open for motorcycles—Won by Walter Davidson, Harley-Davidson. Time, 6:00⅗.

Five miles, for cars listing between $2,000 and $3,500—Won by Clyde Lippo, Rambler; second, Edward Prye, Buick. Time, 7:00.

Five miles free-for-all, for $1,000 purse—First heat (3 miles) won by Paul Albert, Peerless; second, H. W. Freeberg, Buick. Time, 3:63⅗. Final heat won by Barney Oldfield, Peerless; second, Paul Albert, Peerless. Time, 5:43⅕.

Five miles for cars listing above $2,250—Won by Bert Nelson, Pope-Toledo; second, Clyde Leppo, Rambler; third, Ed Prye, Buick. Time, 6:25.

Two-mile exhibition—By Barney Oldfield, Peerless. Time, 2:00. Fastest mile, 0:59⅗.

French Cars for Vanderbilt Race.

Judging from the cablegrams received in New York last last week from Jefferson De Mont Thompson, chairman of the Vanderbilt cup commission, the first five French cars that finished in the recent Grand Prix race will not, after all, compose the French team in the Vanderbilt cup race. The first five French cars in the Grand Prix and their drivers were Renault, Francois Szisz; Clément-Bayard, Albert Clément; Brasier, Barillier; Panhard, George Heath, and Brasier, Baras. According to Chairman Thompson's message neither of the Brasier cars will compete and Renault Fréres will not send over Szisz, the winner of the race. Therefore, Elliot F. Shepard, Hotchkiss; Auguste Hémery, Darracq, and Duray, De Dietrich, will be substituted. Duray drove in last year's race and finished eighth in the Grand Prix. Hémery is the peppery Frenchman who won last year's Vanderbilt race and disgraced himself in Florida, and Elliot Shepard is an American who lives in Paris and who at present has a term to serve in prison for running over and killing a little girl in France. Both Hémery and Shepard were put out of the running in the Grand Prix by accidents.

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NEW JERSEY HOLD-UPS BEGIN

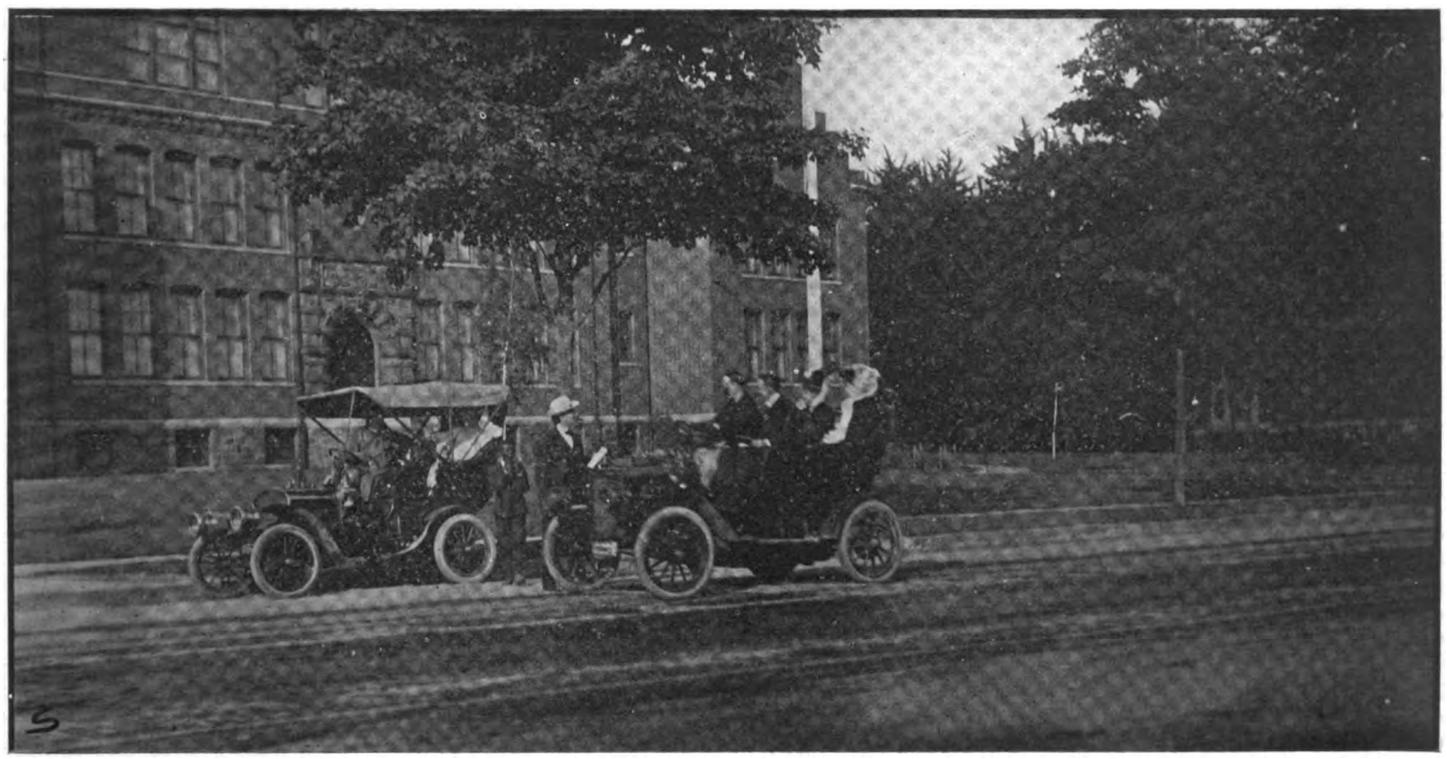
"Free" American Citizens now Receiving Russian Treatment—Odd Situations.

Since July 1st, when the Frelinghuysen law became effective, New Jersey has added a new arm to its law enforcing service. It might most appropriately be dubbed the "automobile shoofly squad," but it is not, despite the fact that the only mark of authority borne by its generals (there are no privates) is a neat but not gaudy badge designed especially for this purpose and which carries with it a solace of $3 per diem. A notebook and pencil and the ability to uphold the right hand in a dignified and warning manner is the only other equipment of this army for the maintenance of which the automobilist "pays the freight," of course.

Conspicuous in their new badges and a smile of anticipation, the members of the army began their crusade under the most auspicious circumstances as the first day of the month was a Sunday and blessed with fair weather. Both residents and transient motorists who found themselves on Jersey roads that day were brought to a halt far oftener than was pleasant for every new motor vehicle inspector had posted himself in the center of a highway of motor traffic and considered it his bounden duty to stop every automobile that came his way. As the law made absolutely no distinction between the old numbers that were rendered void by its taking effect and the new ones it prescribed, there was no way for the motorist to show that he had complied with the new order of things except by exhibiting his license and these "Jerseyized" forms of Russian passports received enough handling on their first day to soil them somewhat.

The photograph shows one of the generalissimos of this new army at work on Central Avenue, Newark. It is not his first capture, as he was out early and grandiloquently held up his hand to the driver of the first car he saw. Mr. Chauffeur forgot all about the day and the date and wondered to himself what on earth the "guy in the Panama hat wanted to see him for." But he obediently pulled up alongside the hand and was informed that "he was under arrest for exceeding the speed limit." The motor was running fast and the high gear was still in, so wishing the special deputy automobile commissioner the compliments of the season in a warmer place, the driver let the clutch in with a bang that sent the car away with a jerk before the sound of the new minion's voice had died away. Then the new deputy pinned his badge in a more conspicuous place on his coat and began all over again by changing his tactics. After that he stood squarely in front of every oncoming car. His long day's work was only punctuated by short trips away from the battle ground for lubrication and a desire to sit down, but then as only Sundays and holidays are rush days, the job is not a hard one and does not call for a much higher grade of skill or knowledge than that exacted of ticket choppers who are rewarded at the rate of $9 a week. But that is in New York.

The "shoofly" guardian of this particular branch of the peace and quiet of the corporation State who was detailed to spread his net on Newark's highway, was not the only one who received a surprise on making his first arrest. Not that his prey escaped as in the former instance—things might have been better all around if he had, for his first victim was none other than one of the components of the complex machine that has been evolved to enforce the law. A State registration agent was his game and while the latter functionary may have sat up nights rehearsing the provisions of this wonderful enactment with the name, he evidently never considered that they applied to him when he went automobiling. In short he was without the necessary credentials. He had no license and such was the marvellous intelligence of the newly appointed "gardeen" in this instance that he could not distinguish between the enforcers and the "enforced." Protests were unavailing and the enforcer in this case had to take some of his own medicine.



The Massachusetts Highway Commission has decided to sustain the low rate of speed for automobiles adapted by the selectmen of Cottage City, Mass. The regulation of the selectmen limits the speed to five miles an hour on Circuit avenue, while elsewhere practically no restrictions is made.

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THE MYSTERIOUS "SOMETHING"

It Covers a Multitude of Sins and Explanations and Ends Right There.

Precedent is something that apparently is not at all applicable to the running of an automobile. Because the carburetter, the timer or the inlet valves worked perfectly last week, or yesterday, or even "last night" has no bearing whatever on their present state, and the fact that nothing has intervened to the knowledge of the driver that should cause derangement seems to be without influence on the result. Instances where the engine "ran smoothly as love's young dream" for miles and then utterly refused to start but a few hours later could be cited without end. Where the car has been put in its house after a day of most satisfactory service and everything left in good shape, it is certainly puzzling to find that no amount of cajoling elicits a response the next morning.

Neither theory nor practice can suffice to explain the conundrum to the puzzled individual whose duty it is to turn the crank and what makes it doubly mystifying is the fact that having given the task up in disgust the engine will sometimes start on the first turn when it is essayed some time later. In the course of the previous seance covering an hour or more, everything adjustable about the car may have been tinkered with, all to no end except disappointment and the task was only given up in sheer despair. But its resumption meets with immediate success. Even the best versed and most hardened driver who ever handled a wheel knows way down deep within him that he cannot explain these things satisfactorily. He will airily inform the victim in that tone of superiority tinged with pity that is especially reserved for the unfortunate that his battery was weak, his carburetter may have been clogged, his contact breaker failed to pass the current, he forgot to put the plug in or turn on the gasolene or any one of the hundred or more things that ripe experience can suggest.

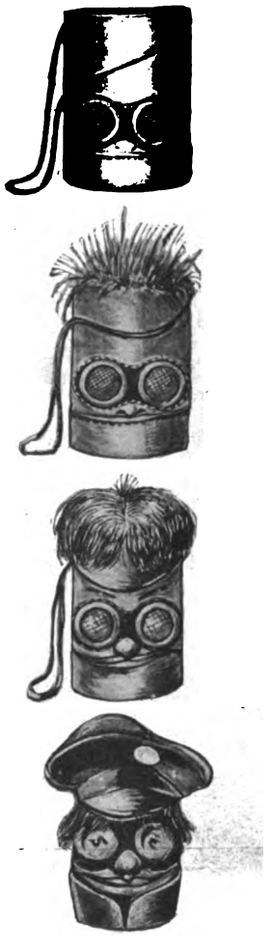
Such imputations arouse the ire of the amateur as a rule, regardless of the source from which they emanate and he has a satisfactory explanation for every one of them, but there is no squelching the wise one. "It must have been something," he will finally conclude and this is the first statement in which the vexed one will agree. It was "something," of course, for it is childish play to say "hoodoo" or put it down to innate cussedness, but what that "something" was neither of them is nearer to finding out that at the start.

Time and experience will bring an understanding of the motor that will aid in solving many a hard problem, but that "something" will crop up occasionally to bother the wisest.

What Glidden Tourists may Encounter.

According to Consul Worman, of Three Rivers, the provincial authorities of Quebec have legislated on the speed of automobiles and a local tax will be imposed on machines not owned in the Province. Those brought from the adjoining territory of Ontario will be taxed $5 per annum, but all entering from elsewhere will have to pay a yearly tax of $10. Americans expecting to tour Canada in their automobiles will therefore be subjected to this larger fee of $10 by the revenue officers of Quebec. The speed limit for the country roads is 15 miles, and for cities, towns and villages it is not to exceed six miles an hour. Infractions of the law are punishable by a fine of from $20 to $100. Judging from the consul's report, the Glidden tour ought to prove a veritable gold mine for the province of Quebec.

Evolution of the Horse's Feed Bag.



Following the initiative of Switzerland and Italy, the customs authorities of Austria have recently raised the deposits required from visiting motorists from $24 to practically $144 per thousand kilos.

HANDICAPPED THE HILL CLIMB

They Tried the Innovation out in Iowa and Only one Protest Arose.

It seemed quite appropriate to residents of Des Moines, Iowa, that a home-made car —the Mason—should carry off the honors in the first annual hill climbing contest of the Iowa Automobile Club, at that place, on July 4. The initial contest of the Iowa club was a complete success in every respect and attracted a large crowd of spectators. The course was up the East Walnut street hill, starting from Sixth street and finishing at Eleventh street. The hill averages a grade of 10 per cent. and is a few feet less than a half-mile. Only one protest was made, that in event No. 1, which was supposed to be for runabouts listing from $600 to $1,000. The event was won by a Queen touring car, hence the kick. For the first time in the history of automobile hill climbs each event was a handicap affair and that the committee did good work in equalizing the performances of each car is evidenced by the times made in each event. Following is the summary:

For cars listing at from $600 to $1,000—Won by I. H. Polk, Queen (50 yards); second, W. S. Donahey, Reo (50 yards); third, Ross Howard (75 yards). Time, 1:11⅗, 1:14⅘, 1:15⅗.

For cars listing at from $1,050 to $1,350—Won by F. Dusenberg, Mason (75 yards); second, F. De Vaux, Buick (75 yards); third, J. Leeds, Buick (35 yards). Times, 0:50⅗, 0:51⅕, 0:53⅕.

For cars listing from $1,400 to $1,700—Won by Dr. Hyde, Franklin (75 yards); second, Dr. Grimes, Franklin (75 yards); third, Harold Welles, Franklin (75 yards). Times, 0:58, 1:06, 1:07½.

For cars listing at from $1,800 to $2,500—Won by Morgan, Winton (scratch); second, Kaufman, Queen (25 yards). Time, 1:01⅘ and 1:04½.

For cars listing at from $2,600 to $4,000—Won by Grover Hubbell, Pope-Toledo (scratch); second, H. H. Polk, White (scratch); third, Bertrand, Acme (25 yards). Times, 0:44⅗, 0:54⅗, 0:57.

For motorcycles—Won by Harry Kitto, Indian (scratch); second, Leslie Kitto, Thor (15 yards). Times, 0:45⅗ and 0:46⅘.

Free-for-all, starting from scratch—Won by G. C. Hubbell, Pope-Toledo; second, F. Dusenberg, Mason; third, Harry Hitto, Indian motorcycle. Times, 0:43, 0:44⅘, 0:44⅘.

For winners in each class, handicap based on previous performance—Won by F. Dusenberg, Mason (30 yards); second, Harry Kitto, Indian motorcycle (20 yards); third, Dr. Hyde, Franklin (15 yards). Times, 0:42⅗, 0:44, time third not taken.

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PERTAINING TO PUNCTURES

Tire Troubles that are Improperly Placed under that Head and the Remedies.

How many punctures are not punctures but something totally different, is a question of a degree of importance to the car owner that may even excuse the resurrection of that most ancient of conundrums in a new guise: When is a puncture not a puncture? When it is a pinch. To the average driver anything that is not a blowout is a puncture; there appears to be no golden mean between these extremes; no other method of coming to an involuntary halt through tire trouble. Loss of air must proceed from one or the other of these causes. At all events, when it does happen, there is usually no disposition to split hairs over what the technical definition or appellation of the particular form of injury may be. It usually suffices that it has been the means of causing the tire to go flat and that repairs are imperative or further ruin will result. And in a great many instances the perforated inner tube is withdrawn and thrown into the tool kit while a spare is made to take its place.

Where repairs must be made by the roadside or not at all, more care is usually taken to examine the nature and trace the cause of the damage than where it is merely a matter of making use of a spare and getting on with as little delay as possible. And if the lesson that is conveyed by many such wounds to the observant eye were better learned and heeded they would need repetition less often and their recurrence would not be so frequent by far. It seems like an insult to the intelligence of even the average driver to tell him to note carefully where the supposed puncture is, for he can see that at a glance. He will proudly exhibit the ghastly rent for your benefit and tell you with a shake of the head that nothing short of a railroad spike or a horseshoe with razor points could have inflicted such damage. Where is the cause of it? Oh, that is back on the road somewhere; there is no telling how far, because he may not have noticed that the tire had gone flat before the car had travelled half a mile or more.

But where are the evidences of its entrance through the shoe? That is another question that is not so readily answered. Close examination of the entire tread will often fail to reveal any sign of the gaping hole that might naturally be expected to be present view of the damage to the inner tube. But if nothing went through the outer rubber whence such a gash that has flattened the tire in a twinkling? It looks like an unfathomable mystery to the uninitiated and the fact that it puzzles the driver shows that he has not noticed the location of the hole in the tube or appreciated its significance—that is, its location with regard to the position the tube rests in when inflated in the shoe. Punctures are the result of foreign bodies violently thrust through either the tread or the side walls of the shoe and in turn through the inner tube so that when the injury shows signs of having been inflicted from below it is a pretty good sign that it is not a puncture for even horseshoes and railroad spikes cannot make their way through the rim.

Noticing the location of the damage accurately will show at a glance whether it is actually a puncture, or what is usually worse, a pinch; worse not alone because it might have been avoided altogether with a little care, but there is more of it as the injury is generally greater in extent and harder to repair. The driver whose tires have been damaged as the result of the beads of the shoe pinching the tube when screwed up and has realized the cause, appreciates the need of more care and less speed in replacing a tire, as minutes saved in the operation mean future trouble that frequently cannot be made good on the road. It is simply a question of getting the inner tube in its proper place and to the inexperienced hand, the manipulation of a four or four and a half inch tire so that its tube lies snug and safe above the danger line represented by the gap between the heavy beads, does not appear to be a simple operation in any sense of the word.

With one of the beads of the stiff, resisting shoe home, it is not altogether an easy matter to place the limp inner tube in its receptacle. And that, next to giving it a sufficient amount of inflation to make it clear this pitfall, is the part of the operation that is easiest of accomplishment. That far no damage is done because none is possible. The success of the operation hinges upon the insertion of the outer bead of the shoe and it is in this portion of it that the pinching of the lower side of the air tube which is the cause of so many alleged punctures occurs. But as this crucial part of it must be done in the dark, so to speak, how is the driver to know whether the tube has been pinched or not once the tire is in place? He does not, and what is more, he does not take the trouble to find out usually. As soon as all the lugs are screwed taut, the tire is inflated and that is the end of it. He rides off trusting to luck.

But even despite the utmost care in carrying out the operation the tube may have been pinched at some portion of its circumference and it is the better part of discretion to devote the slight amount of additional time necessary to verify its location before giving the final tightening up. This may be done most easily by prying the off side of the tire up with the lever the same as if it were the intention to remove the shoe, but only lift the bead high enough to see under it until the edge of the other bead is visible. If the tube has been pinched it will show at one of these points of examination and may be liberated, a generous application of French chalk being conducive to this as well to facilitating every part of the work. The wheel should be slowly turned and the outer bead pried up every few inches.

As far as it goes an examination of this kind establishes the fact that the tube has not been pinched between the beads beyond a doubt, but this gives no assurance that it has not suffered the same fate at the hands of the lugs and to prove that this is not the case they should be pushed up against the inflated tube before being tightened into place. If they spring out again freely from the force of the compressed air all the rubber is above them as it should be and it is a wise precaution to follow the same procedure in the case of the valve. These are not the one and only cause of internal damage to the tube, as there is always more or less movement within the shoe while running and care must be taken to see that the lugs from which the covering has been worn off should not be used. The friction generated is sufficient to wear a hole through the thin rubber in a comparatively short space of time and the resulting damage is such as to be entirely beyond the facilities of the roadside repair kit.

It is not altogether unusual for a motorist to complain to a tire-maker that his inner tube has punctured twice, three times or even four times within the course of a few miles. Always the same tube, which seems to be sufficient and conclusive evidence that the tube itself is at fault and not the driver. This leads to a caution that should be as scrupulously observed as the very repair of the tube itself, and that is, not to replace the latter until the cause of the damage has been ascertained beyond the shadow of a doubt. If there be a tear or gash in the tube in the same plane as the valve or very close thereto, there can hardly be any question but that the tube has been pinched; the damage has proceeded from an internal and not an external cause. In every other case, no amount of painstaking scrutiny is too great if it leads to the extraction of the article that has caused the puncture, as the following instance strikingly illustrates.

Puncture number one was a quiet unobstrusive affair that simply let the tire down without any fuss and examination showed it to be a simple little nail hole that was readily made good. A repitition of the same experience, the puncture being of exactly the same nature and in almost the same location as the first aroused suspicion but even the closest examination possible under the circumstances failed to reveal any cause for it. Within less than two miles further along puncture number three occurred—a little larger than the two previous ones but of a character and in a location that identified it beyond question as proceeding from the same cause. It was plainly evident that time was being wasted and the tube ruined by replacing it without first extracting the cause of the trouble.

The shoe was felt and thumbed and rub-

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bed and squeezed and felt some more, while three pairs of eyes sharply scrutinized it inside and out, but all to no purpose, when one of the party suggested the use of a hammer—an expedient that was promptly declared a waste of time by the other two. But at the fabric side of that shoe he went with a machinist's hammer, tapping smartly all the way round, and sure enough, the next rub round the tread revealed the head of a nail almost flush with the rubber and exactly the same color. The pliers soon showed it to be a small wire nail or brad about seven-eighths of an inch in length and probing with a fine, stiff wire showed that it had been clear through rubber, fabric and inner tube, though it could not be found by the ordinary means of examination. As a matter of fact, it was barely long enough to reach through the rubber tread alone much less the rest of the tire, but it had gradually become embedded until its head had become flush with the tread; its point was then still a safe distance from the tube. Running over sharp pointed stones, some of which had struck it square had managed to countersink it until it had gradually disappeared in the rubber.

Its head was then scarcely more than an eighth of an inch below the surface of the tread and its point had just pierced the fabric but had not yet damaged the tube. Then came an unusually heavy shock, the brunt of which had been borne by that tire and the point emerged from its case and punctured the tube. That is, the tire flattened so violently and the head of the nail being firmly embedded in the rubber its point simply emerged from its sheath, did its work of destruction and immediately the excessive pressure was relieved, was drawn back therein, so that no amount of search sufficed to reveal it. A twice-told repitition of this process had no effect on its position, except to slightly enlarge the hole in which it traveled back and forth but which still kept it effectively concealed from sight or touch. But as it was only held by its head against pressure exerted from the outside, the tapping of the hammer started it. There has seldom been such a striking example of the necessity of always removing the cause of the damage before proceeding further, brought to light, though it is doubtless one of many that only differ in detail.

Relieving the Side Thrust.

A decidedly novel arrangement of the suspension is to be seen in one of this season's light cars of British origin. The main suspension is of the side spring variety reinforced by a transverse spring at either end of the chassis. This is affixed to the frame at its middle point, while the ends instead of being rigidly attached to the axle, are allowed a certain amount of side play by a special mounting, while the position of the frame is assured by means of a pair of small spiral springs at the sides. By this means the side thrusts which occur in rounding turns, and also to a limited extent at other times, are taken up by spring tension rather than by solid bracing, as is commonly done.

The American Car in France.

When motor cars began to make their appearance in this country from abroad, and particularly from France, one of the first names to become well known in the connection was that of Henri Fournier, whose prowess in the racing field was only equalled by his ability to secure converts to the car he then represented. Later, he scintillated for a time, and then seemed to pass out of the range of vision, and was almost forgotten until it transpired that he was operating a successful agency and garage in Paris itself, and was very busy taking in money there. That being the case, and since he helped to pioneer the French car in America, it seems only right that he should be given an opportunity of helping to introduce the American product to France. This he has been given in the agency of the Rainier cars, which he recently has secured.



HENRI FOURNIER IN HIS AMERICAN CAR.

The accompanying illustration shows the tall driver in one of the Americanisms with which he is going to "do things" in his own country, and which certainly is as racy and practical a machine as the hand or the eye could desire.

Causes of Irregular Mixtures.

Automobiles which have gravity feed from the fuel tank to the carburetter frequently manifest symptoms of distress when climbing grades, and even refuse to climb to their full capacity on one occasion, a hill which at another time might be taken without question. The reason is perfectly apparent, being due to nothing more or less than the difference in head of the fuel when the tank is filled to different levels, this causing an irregular flow through the jet, and accordingly, a varying mixture in the cylinders at different times.

As a remedy for this, some makers fit a small auxiliary tank upon the dashboard which has sufficient elevation above the float chamber to do away with any trouble from this source. Others have in one or two instances, arranged a pump for creating a slight air-pressure upon the surface of the fuel when heavy grades have to be taken.

Generally speaking, however, this method breeds trouble as unless the air inlet to the tank be stopped temporarily, the air will leak out fast enough to keep the pressure down, or, if the inlet be stopped, the driver is apt to forget to maintain a pressure as the fuel level falls, whereby a back pressure at the carburetter is formed, and the motor starved when running on the level. In this respect, the pressure feed systems which are automatically regulated are greatly superior to simple gravity feed, unless the tank level is reasonably high.

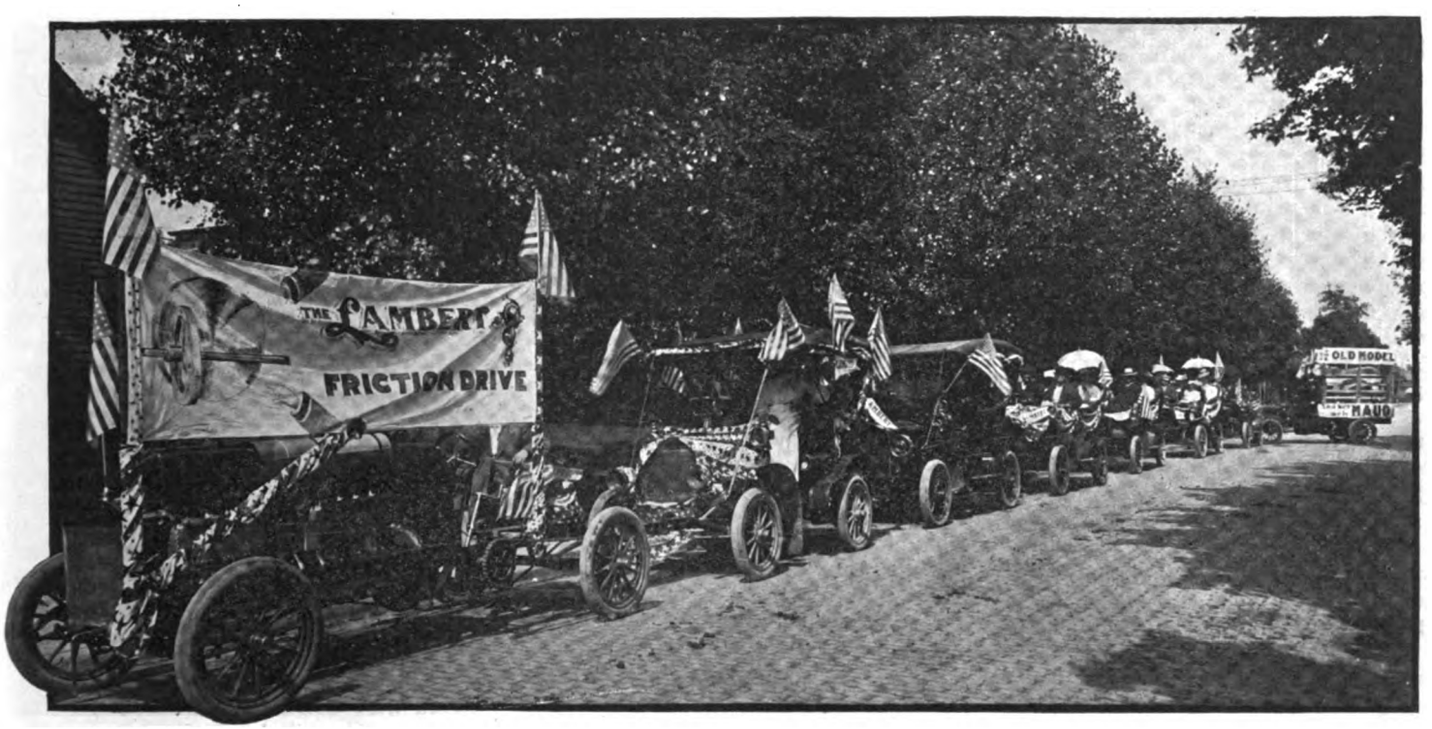
When a car actually becomes stalled because of loss of fuel pressure on account of a grade, the standard old-time remedy is to turn around and run backwards until level ground has been reached, the tank level thus being raised and regular feed assured. This, while disagreeable and inconvenient in the extreme, has saved many a driver from the ignominy of a tow.

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HOW LAMBERT CELEBRATED

Got up a Turnout of his own, and Maud, the Mule, was in it.

There was at least one automobile maker who celebrated the "great and glorious Fourth" in a fashion out of the common. Others may have done so on a more or less elaborate scale, but hardly to the degree of organizing a parade in which patriotism and good advertising were blended in so happy a manner, as was the case with the Lambert



celebration. Eight cars of different sorts constituted the pageant which the Buckeye Manufacturing Company, Anderson, Ind., sent out in honor of the occasion, eight car loads of enthusiasm, and eight examples of the unique friction-driven machine which stands so much alone in the world of motoring.

As depicted in the illustration, the line was headed by a big racing car surmounted by a banner "telling the story" of the friction drive, while behind it were six touring cars, some with tops, some in lighter trim, while closing up the rear was a heavy truck mounting a lattice body, and carrying a forlorn looking hybrid representative of the equine race, placards above and below bearing the legends, "Old Model," and "Her name was Maud." Of course there was plenty of bunting, and lots of stars and stripes, as befitting the occasion, and even the torpedo tank on the leading machine, somehow, came to assume the aspect of a huge rocket chained down for the time being, but ready to soar skyward at a moment's notice.

Accumulators Become Dry Cells.

A fabulous tale is related of the eight horsepower Maxwell car which was entered in the recent Scottish Reliability Trials, which speaks of the involentary transformation of an ordinary accumulator into a dry battery by accidental means. According to the story, the driver, when filling the tanks, allowed a small quantity of oil and gasolene to overflow into the tool box and onto the ground, where, in some unaccountable manner, it became ignited and set fire to the box and adjacent woodwork. The celluloid casings of the accumulators caught fire and burned off nearly the entire tops, exposing the plates themselves to a quantity of sand which was thrown on to extinguish the flames. Afterward, the observer ordered the car to be started, and this was done immediately, the car continuing on its journey, completing all the events and making the return to London without change of accumulators or any alteration in the wiring, notwithstanding the fact that the cells were half filled with sand, and minus their tops.

Marriott's new Mexican Venture.

Charles W. Marriott, who runs a stage line between Silver City and Mugoelon, N. M., has asked the government for a permit to construct a road for the mail route and if the department grants the permit he will establish an automobile line. Merriott figures that with an automobile the trip can be made in less than seven hours, where it now takes twelve hours and four relays of horses, and that therefore "there's millions in it" for him if the government but smiles on application.

SPRINGFIELD'S NIGHT PARADE

Proved a Pleasing Feature of the Fourth's Celebration—The Lucky Prize Winners.

One of the prettiest features of the day and one which fittingly crowned the Fourth of July celebration in Springfield, Mass., was the illuminated automobile parade there last Wednesday night. Forty-four handsomely decorated passenger cars were in line and seven commercial wagons carried loads of the eternal feminine. After a parade through the principal streets the cars passed in review before the judges' stand at Fort Pleasant avenue and the prizes were awarded. First prize in the passenger class went to T. L. Haynes' Thomas, which was decorated with white trellis work extending upward from the body of the car on each side and covered with garlands of wisteria. Incandescent lights gleaming out amid the flowers gave a pleasing effect. Mrs. L. A. Flynt's Pierce carried off second honors, and H. A. Sargeant's Rambler, won honorable mention. Both these cars were covered with flags, flowers and lanterns.

Smith & Murray's Knox truck was voted by the judges the best in the commercial class. Resting on the floor, had been built a superstructure, low in front and high in the back, upon which sat a number of young women dressed as nymphs and presided over by the Goddess of Liberty. Each held a streamer, attached to the beak of a golden eagle on the front of the car. Second prize was taken by a Cadillac delivery wagon.

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NOW THE GLASS PLUG

It Makes its Appearance Abroad and Seems to be of Some Promise.

While the plausible advantages of using glass as an insulating material in the construction of spark plugs has frequently been discussed, it has not before been put to a practical test in a device possessing marketable properties. Insulators of every possible description have been tested more or less faithfully, in this connection, and the almost universal porcelain medium chosen from among them all because of its practical efficiency in its primary function as an insulator, and second, because of its cheapness and general serviceability when properly treated. Yet it is by no means a settled fact that porcelain is the most satisfactory material for the purpose, and that being the case, any liberal experimentation with other materials, such as is made possible by the marketing of the English "glass" plug, which has just apepared, is a welcome one.

Considered from its most advantageous standpoint, glass is probably the best insulator available for the purpose, standing ninth in the list of insulators, commonly recognized as being headed by dry air; while mica is tenth, and porcelain eighteenth; the ease with which it can be worked, makes it possible to fuse the insulated pole of the plug directly into it, avoiding any chance of leakage at that point; it is harder and more uniform in consistancy than porcelain, being entirely free from flaws and planes of weakness, and, what is more to the point, it is cheaper to construct. Moreover, the point most dwelt upon by the makers of this new venture, is that its transparency makes it possible to inspect the action of the spark within the cylinder at any time, noting by the color of the ignition flame the performance of the carburetter and action of the current, and revealing other interesting points concerning the vital action of the motor.

From the adverse viewpoint, however, the utility of glass insulation is shadowed over by a wave of uncertainty. For, since the coefficient of linear expansion of glass under the action of heat is slightlty more than double that of porcelain, it is apparent that due allowance for the rapidly alternating temperatures of the engine would have to be compensated in a mechanical way, by no means easy of accomplishment without risk of lost compression. This disadvantage is further increased by the consideration that the great brittleness of glass would make provision for its expansion absolutely compulsory, and this notwithstanding its greater hardness and strength. Also, the brittleness would prove a disadvantage when it came to hard usage, continual vibration, possible external shock, and direct abuse.

Despite the apparent overweight of the disadvantages, however, there is something decidedly attractive in the idea of a glass insulated spark plug. Whether it furnishes a "window" for inspecting the insides of the engine under action or not, makes little difference after all. What is desired is an all around insulating material which will stand up under all sorts of conditions. If glass can be made to attain this end, let it be glass, if not, the superior merits of a device which furnishes a peekhole into the cylinder probably will have to be foregone.

Mud Guards Made More Serviceable.

A very great improvement in accessory body design which has become popularized this season to a greater extent than ever before, lies in the continuation of the mudguards from the sides of the chassis, making a complete closure of the under side of the body, instead of a series of disconnected surfaces. By this means, considerable of the cross-thrown mud which formerly used to fly up into the body, is caught and thrown back to the road, and also the rising dust is practically excluded from the forepart of the car. Another good feature which is to be seen on many cars, is the continuing of the running boards to the chassis. This also prevents the rise of dust and acts as a good protection for the footboard, besides helping the cleanly appearance of the machine. When these guards are made of metal and permanently attached, however, they may become a delusion and a snare, for they seriously interfere with getting proper access to the mechanism in time of need. On this account, they should be made in removable form, and moreover, if they are made of leather, they will prove far more suitable than if of metal for the reason that the metal is apt to lossen its fastenings and clatter, besides furnishing a sounding board and increasing the noise of the machine.

When Soft Tools are Necessary.

When finished metal parts are to be driven, a soft faced tool should inveriably be used. The most common example of the type in question is the babbit hammer. This in its simplest form consists of a short block of the metal which has been poured around a length of iron pipe which serves as a handle. It answers the purpose well enough, but has the fault of wearing out and bruising up too quickly. A better form is that which consists of a bronze or copper ring into which the handle is fitted, and which has the babbit head poured or forced into place. Copper hammers are frequently used, but have the drawback of soon becoming hardened on the face, and failing of their best purpose, while wood and rawhide mallets are too soft, and consequently lack endurance. For small and delicate parts which are apt to become deformed or marred under the action of the hammer, the best method is to use a piece of hard wood as a driving block, striking it with a steel hammer.

PAINTING THEM BROWN

How to Obtain the Best Effects in that Finish—The Various Shades.

"There is a good deal of assertive color to golden brown, but there is withal a quiet warmth that makes the color very likeable. I shouldn't, to be sure, like this color for the big slashing touring cars that require an aristocratic dressing to make them fit for the company they are expected to keep, but for the sprightly little cars and runabouts that really need some conspicuous color without seeming garish, this particular brown appears to be especially adapted," says a well-known carriage painting expert.

"It is a comparatively strong covering color, easily controlled under the brush, and, like nearly all browns, is durable. Stripe, for example, with a 3-16 inch line of gold, with distance fine lines of black; or, if preferred, stripe with a ¼ inch line of gold, and edge with twentieth century red paint. Paint the running parts a lighter shade of brown and stripe in unison with the body. Another old-time favorite came to light last winter upon a smart four-seated runabout which proved upon examination nothing more nor less than a London smoke, looking as fine and satiny as a pelt of seal-skin. London smoke lacks the red fire of golden brown, and perhaps is deficient in certain softness of color tone that distinguishes the latter pigment, but it carries a distinguished and exceptional brilliancy of color that usually attracts attention.

"London smoke may be effectively striped with ⅛ inch lines of Naples yellow, cream color, ivory white, gold or aluminum, relieved with distance fine lines of carmine, Tuscan red, or black. These distance lines may consist of two hair lines drawn on each side of ⅛ inch line, the hair lines being drawn 1-16 inch apart. The main line, however, may be drawn at a width of ¼ or 5-16 inch and edged with any of the colors named. For light runabouts, a light shade of onyx brown furnishes a nice, soft brown, with plenty of positive color, without being over conspicuous. Hoffman brown, while a much deeper brown than the preceding ones mentioned, seems especially suited for the runabout class of autos. It is a color of much lustre and takes kindly to gold lines with dainty lines of canary yellow, primrose yellow, or straw color, placed as distance relief lines.

"The browns, like most other colors, are susceptible to enrichment by being used as glazing coats in their final application. In other words, after the colors have been placed in sufficient strength upon the surface to insure perfect opaqueness, being, in fact, ready for the varnish, a percentage of color is then added to the varnish to serve not only as an enriching medium, but to maintain, unclouded, the genuine tone of the pigment.

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THE HYDRAULIC CLUTCH

Its Principle, Possibilities and Advantages—Types that have Evolved.

From the earlier forms of friction clutch, borrowed as they were from the everyday types of power transmission, down through manifold improvements, the automobile industry has progressed to the present day with its successful use of the multiple disc clutch, which apparently is the most advanced mechanism of its class yet to be used with success. Now there is talk of the hydraulic clutch. It has been discussed at length, experimented with, invented from various points of view, and at length has come to figure quite largely in the experimental field of automobile engineering. Its apparent possibilities are numerous, and its essential characteristics hold out a pleasing future for it if only it can be brought to a state of practical efficiency which will warrent its adoption. How far its development has progressed, and how much of possibility there is in its principle is an interesting question to consider, and one which reveals the fact that considerable work is already being done upon it, though so far, apparently, in what is purely an experimental way.

The hydraulic clutch, is nothing more or less than an application of the pump principle. It may be likened to a pump in which the driving shaft is connected with the motor, and the casing or normally stationary part with the transmission of the car, while its delivery, either to a receiver or back to its suction chamber, is controlled by suitable means and governs its power of transmission. When the delivery is perfectly free, there is practically no connection between the motor and transmission, while with the delivery closed, the resistance to the internal motion of its elements is sufficiently great to bring about a fixed connection between them, and hence, to establish a fixed connection between the motor and its transmission.

The advantage of the type rests in the fact that fluid friction is less than the mechanical friction of the ordinary types of clutch, that the control of fluid passing through a valve is far simpler and more easily accomplished than that of mechanical friction of any description, that the heat of fluid friction is more readily disposed of than that of mechanical friction, and from these facts, that the acceleration possible with the hydraulic clutch, in theory at least, should be indefinitely variable, always without shock, and always well within the control of the operator. Coming then, to the possible methods of applying the principle as already developed, it is apparent that the classification peculiar to pumps also will hold in this case, and that the types will divide themselves into groups working either on the plunger or centrifugal principle. The former being the more easy to comprehend in this application, and also being the more natural development, should be considered first of all.

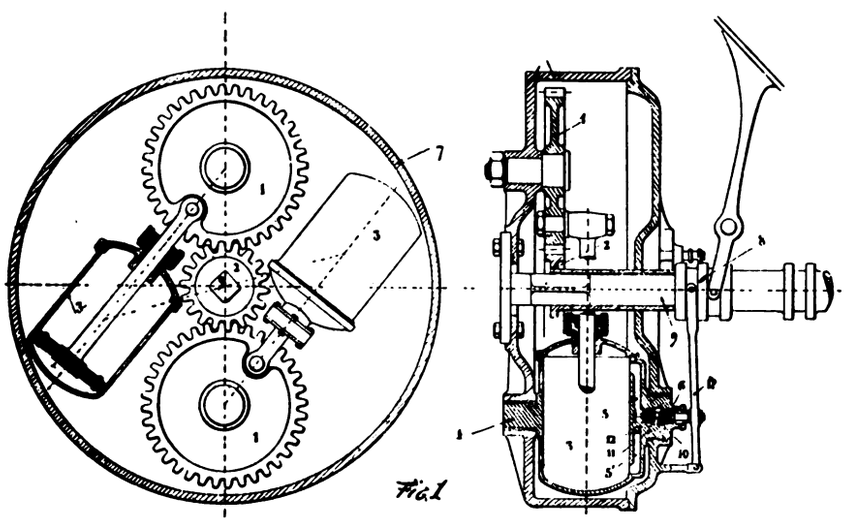


Fig. 1

One of the most natural evolutions of this principle, and one which also is typical of several examples which have been produced already, is the Henroid and Delpous, which is illustrated in Fig. 1. Essentially, it consists of a pair of oscillating cylinders the pistons of which are driven by spur gearing from the transmission shaft, the other element of motion being derived by the rotation of the cylinder mounting about the same axis in connection with the motion of the crank shaft. The opposite ends of the cylinders are placed in communication through the medium of a by-pass valve, and the circulation of the fluid contents from one end to the other is regulated by its degree of opening, the resistance of the clutch, and hence its transmitting power depending on the position of this valve, and the fit of the pistons.

In detail it will be seen that the cylinders 3 are mounted by the trunions 4 in the plate 7 which forms the outer casing, and takes the place of the ordinary flywheel. The gears 1 which are connected to the piston rods, mesh with the pinion 2 which is slidably mounted on the shaft 9 and is in direct connection with the driven shaft. It is controlled through the collar 8, which in turn is moved longitudinally by the pedal. Also controlled by the same collar is a lever 13, duplicated for the cylinder not shown in the sectional view, which controls the position of the regulating valve 6. This serves to regulate the flow of liquid between the two ends of the cylinder through the ports 5, 11 and 12, suitable packing being placed about its stem.

The action is as follows: For complete transmission of power, the valves are tightly closed, and the power of the device is measured by the "slip" of the pistons and the holding power of the regulating valves. The liquid being, in theory, at least, unable to pass from one end to the other

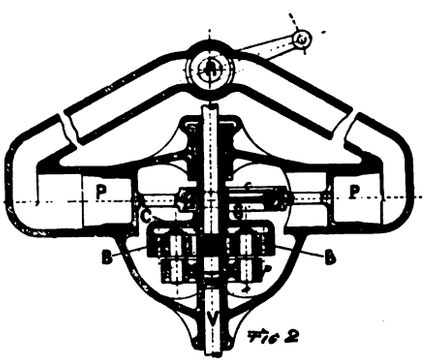


Fig. 2

of the cylinders, the pistons are kept from moving, and the entire mechanism remains stationary within itself, with the result that the clutch turns as a unit, and the power is transmitted without internal fricion. When declutching commences, the pedal is partially depressed, opening the valves 6, and allowing the fluid to pass back and forth in the cylinders, with the result that there is a slight amount of relative motion between the two elements, which, of course, is directly proportional to the opening of the valves, and which increases until the point of full opening, when the driven member comes to rest, leaving the motor turning. Complete depression of the pedal, however, does more than simply opening the valves to their full capacity, by drawing back the pinion 2, throwing it out of mesh with the gears 1, and thus entirely freeing the two elements of the mechanism, and giving an absolutely free clutch, the only friction between the two elements being that of the driving and driven shafts at their point of contact.

That the same principle may be carried out without the necessity of causing the cylinders and their subjoined mechanism to rotate, is shown in the case of the Wegschneider clutch, shown in Fig. 2, which besides this point of difference, possesses the added advantage over the other of having less mechanism. Reduced to its lowest terms, it consists of a spur differential gearing, through which the drive normally takes place, and a double opposed pump which is

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driven by the sleeve of the differential, and corresponds in reverse aspect, to the motor of an engine, coupled to the axle sleeve without intermediary transmission. Checking the action of the pumps, throws sufficient resistance into the mechanism to cause the transmission of the power through the differential just in the way the one wheel of a car may be made to turn the other backwards when both are jacked off the ground.

Considering the manner in which this is accomplished, it will appear that the motor shaft A carries a pinion which meshes with pinions B-B, which are mounted on studs carried by a spider on the transmission shaft V. These same pinions also mesh with an annular gear in the disc C, which is keyed to the sleeve G, free to turn about

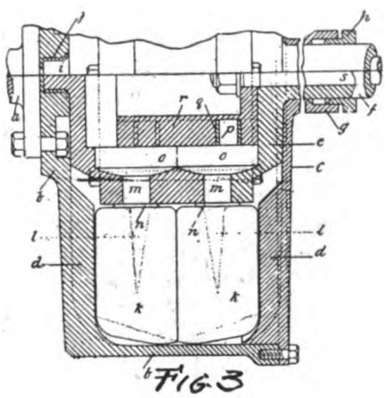


Fig 3

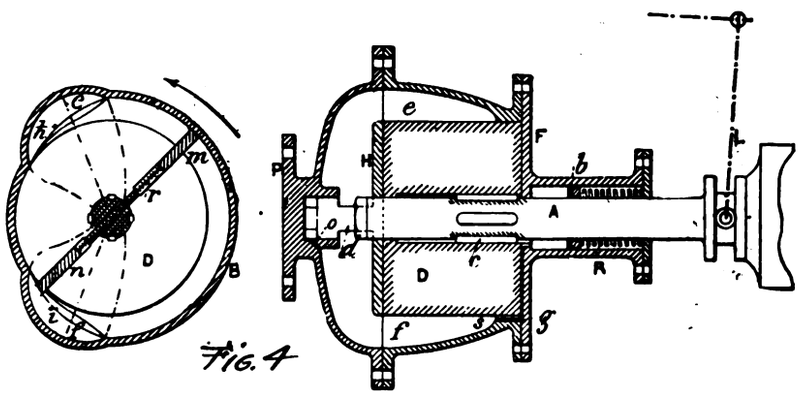


Fig. 4

shaft A, and which carries an eccentric strapped and yoked to the pistons P-P. The latter are single acting, and are connected by a large passage, controlled by the valve R which is manipulated by the operator.

With the valve wide open, there is little resistance to the action of the pumps, and hence, the superior resistance of the driving gear of the car, causes the shaft V to remain stationary, while the disc C is driven by the gears, and the pumps work idly, leaving the driven mechanism at rest. When it is desired to engage the clutch, the valve R is partially closed, when the increasing resistance to the action of the pumps serves to cause a differential action between the sleeve G and the shaft V, resulting in the starting of the car, and its acceleration in proportion to the rate of closure of the valve. When the valve is entirely closed, the resistance to the movement of the pistons is sufficient to stop them entirely and give a drive through the spur gears to the transmission.

However nice may be the regulation possible with a clutch of this type, and there can be no doubt that it should be ideal in its evenness, the fact remains that there is a great deal of mechanism involved in its action and that for a portion of the time, at least, the power transmission is through a set of spur gearing of comparatively small sized numbers, which fact carries with it numerous disadvantages. In the one case, this is utilized only during the period of acceleration, while in the other, it comes into play for the positive connection. It is this purely mechanical feature which constitutes the most serious drawback to the rotary-reciprocating type of hydraulic clutch, and which may prevent its ultimate adoption to any great extent.

Turning then, to the second class, or those in which the action is either partially or completely centrifugal, it will be apparent that the method of construction may follow along the lines of either the fan or centrifugal types of pump. Of the former a recent British invention serves as an illustration. It comprises an outer casing which turns with the motor and furnishes sufficient momentum from its own inertia to serve as a flywheel, within it is mounted a multiple bladed fan, each blade consisting of a pair of wings which are rotatably mounted in their bosses and which may be turned at any angle to the plane of rotation to expose more or less surface to the fluid contents of the outer casing. The fan itself, of course, is fast with the driven member of the clutch.

As seen sectionally in Fig. 3, the drum b carried by the driving shaft a, and enclosed by the head c having a stuffing-box g-h for the driven shaft s, contains internally the webs d extending radially inward from the end walls. The body of the boss e is hollow as is the shaft f, and it has a bearing within the body of the clutch at the point i. Mounted in the bearings n-n, of the boss are the fan shanks m-m, mounting the blades k-k, which, in the position shown, nearly fill the cross-section of the cavity of the drum. The discs o-o within the hollow of the boss, are connected by means of the eccentric pins p, with the block r, which is slidably mounted within the boss, and may be moved by means of the sliding rod s, which comes out through the hollow of the shaft f. By moving this longitudinally, the angularity of the blades may be adjusted, and hence, the transmitting power of the clutch.

The action of the device is plainly apparent. Centrifugal force acting upon the fluid with which the body of the clutch is filled at all times, serves to drive it to the outer portion of the casing. There, the interference of the fan blades, which may be either at right angles to the plane of rotation or parallel to it secures the driving effort. In the one case, it will be at its maximum, and in the other, it will be zero, the gradations between the two being obtained by the intermediate adjustments.

Following along the lines of centrifugal machinery, the Martin clutch presents several interesting and unusual features. It comprises an outer casing B which is fast with the driven shaft is symetrically eccentric to it, and contains a pair of irregular shaped ports e-f, which spring from opposite points on the sides of the body and lead to the end where they join in a common passage communicating through the tiny ports o-o, with the interior of a socket d. The driving member of the device consists of a cylindrical body D, carrying a pair of blades m-m, which are held against the outer wall of the casing by the spiral springs r. It is keyed to the driving shaft A, which is free to slide longitudinally, being held in the extreme position by the spring R within the neck of the casing b.

The action is simple enough. The relative rotation of the parts when the clutch is disengaged serves to create a circulation in the liquid with which the device is filled, driving it into one of the ports e-f, and through the passage at the end to the other. The only resistance interposed to this action is that of the fluid in the ports, and as these are comparatively large, this is not great. On moving the shaft A to the left under the tension of the spring R, the projecting part of the shaft A passes into the socket at d, partly closing it, and only allowing a small amount of the liquid to pass through the ports o-o from one side to the other, with the result that a considerable resistance is offered to the relative motion of the two parts, until the point of complete closure, when the connection is positive.

But, simple as this arrangement may appear, it would seem that the acme of simplicity is reached in the case of the Lacoche clutch, another subject of recent patents, which is not simply centrifugal, but reac-

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tionary in its action, and which embodies no contact surfaces, and hence, eliminates all but fluid friction from its make-up. Fig. 5 shows it in longitudinal and transverse section, and serves to emphasize its simplicity. The main portion, which is fixed, carries bearings for the driving and driven shafts, T and R, which meet at its center. On the end of the driving shaft T is fixed a fan F of appropriate shape, which is designed to give a rotary motion to the liquid contents of the outer casing, and which from its construction and connection, follows exactly the speed of the motor. On the end of the driven shaft R is fixed an annular casing which fits closely the outer walls of the casing B, and contains internally, a series of wedge-shaped surfaces, W. A pipe K, leads from the outer space between the driven member and the casing to a supply tank, and permits the liquid contents to be drawn off, while a second H, is provided for filling the casing, as occasion demands, and by a special arrangement, these two functions are made to be controlled by a single three-way cock. A pipe L leads from the central portion of the device, and permits the influx of air, to sustain the atmospheric pressure as needed.

The fan is made to turn by the motor and by its influence, the liquid contents of the casing is driven outwardly by centrifugal force against the inner side of the driven member N, where it impinges against the wedges W, and by its reaction, creates a torque in the same direction as that of the motor, and proportional in its intensity to the mass of the liquid and the speed of rotation. When it is desired to reduce the speed of transmission, the outlet valve is opened and a portion of the liquid is allowed to flow out into the supply tank when the reduction in mass of the remaining contents serves to reduce the torque, and increase the difference of speed between the two members. Conversely, when it is desired to start, or to increase the speed up to its limit, that is to say, the speed of the motor, it simply is necessary to open the inlet valve and allow the action of the fan to draw in a certain quantity of fresh liquid. Thus, when accelerating, the device becomes essentially a pump, functioning like an ordinary centrifugal pump except that the two elements are both in motion, one at high speed and the other at a slower rate, which depends upon the amount of liquid in the casing.

Here is one of the most delightful applications of the hydraulic principle imaginable, it possesses many ideal features, among them being freedom from mechanical friction of any sort, the absolute impossibility of shocking any part of the mechanism, uniform and controlable acceleration, and almost elementary construction. Yet it also possesses one tremendous drawback in that it is dependent on the speed of the motor for its power. So long as the motor is run at high speed, the clutch will hold and carry its fully calculated load, but if the motor becomes overloaded in hill-climbing, for instances, the immediate result of its slow speed is a loss of power in the clutch, and its consequent slipping. While this feature in itself would naturally prevent the overstraining of motors in inexperienced or careless hands, it also would seem to mitigate against the device, by the same token, and give it an element of uncertainty, wholly undesirable.

This, then, is the present status of hydraulic clutch design insofar as current experimentation has manifested itself in patented

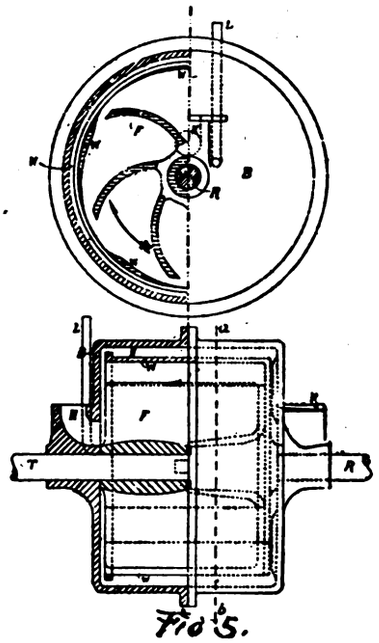


Fig 5.

results. Beautiful theories, infinite possibilities, and hopeful prospects seem to mark each of the various types, but they also have their disadvantages when measured against the efficiency of the multiple contact type of disc clutch, or even in the light of present efficiency in cone clutch production. Yet neither of these types has yet been made to give complete satisfaction and, that being the case, the field is open to improvement, and the public is eagerly awaiting the development of some type, be it any of the three, which will satisfy all or nearly all of the essential conditions. The efforts being made seem to hold promise of tangible results in that direction.

Piping that Prevents Breakages.

Carburetter piping should invariably be provided with a sufficient number of long-radius bends or coils to permit of relative working between the tank and carburetter without straining the joints. The same principle applies to lubricator piping, and unless due provision is made in this regard, broken connections are almost certain to result sooner or later.

THE DESIRE FOR SPEED

Whence it Came, How it Develops and how Afflicts its Victims.

There is one bad habit that nearly every driver acquires in his early days behind the wheel—call it a disease and the appellation will be nearer the truth, for such it is in reality. And like the infantile ills through which those of the fittest who survive must pass in order to do so, very, very few chauffeurs escape the malady. It has no name and it would be a difficult thing to give it one. Neither science nor the man in the street have catalogued it, but it is there just the same and none more familiar with it than the man who drives a car constantly. He sees evidence of it at every turn; the symptoms of it are plain and frequently in evidence and sometimes, experienced and cool hand though he be, it attacks him, too. Seldom when a policeman is in sight, however, for though under sufficient provocation he may cast discretion to the winds, it does not go as far as that.

It is nothing new, nor has it any novel features. It has existed ever since man walked this mundane sphere, and just as surely as the measles and the pip will go on claiming their victims down through the ages of time, so will this disease continue to afflict those who motor, or aeromotor, or cover the earth's surface or its atmosphere by any mechanical means of transport. It descended direct from the horseman to the cyclist, and it was but a short step from the latter to the automobilist. With each transition it has assumed a more violent and malignant form—not because of any difference in the individuals, but owing to the change of subject upon which it is practiced.

And as the automobile appears to be the materialization of man's positive, comparative and superlative in the matter of speed—the horse and the bicycle filling the lower rungs of the ladder, so that the disease manifested itself at its worst in the case of the driver of a car. Horsemen have known it for years—ever since the pair that Noah saved walked out of the Ark and again took up the work of begetting a new race of equine steeds, but as horses are such a variable quality, breeds have ramified since then, the malady has only been manifest in sporadic and more or less infrequent outbreaks. It was only awaiting the appearance of the bicycle in great numbers to show itself in its true light and when the roads wherever one could look were covered with moving dots, lines and groups that stood for bicycles, it was in evidence everywhere. Each unit of the many moved independently and some moved faster than others—that was the cause of it all. From somewhere in the rear there would hurtle by a hunched apparition with its head hanging over the handle bars and its legs

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rapidly propelling a huge sprocket. It was the disease personified and it was so highly infectious that a number of those in the hitherto slowly moving lines and groups were immediately attacked and contracted it. They likewise immediately bent low and speeded up to twice the number of revolutions that had previously satisfied them—showing every symptom. This only tended to agravate the case of the first victim who bent lower and lower and spun his gear at an increased rate. Soon there would be a trail of victims stretching out for half a mile or more and every group that was passed received the contagion and lost one or more of its members. Such a large number of cyclists became affected and took it so badly that they came nearer giving it a name than any body of victims before or since. They called the first and most rabid sufferer a "scorcher" and the victims of his contagion, "hangers-on."

In descending to the motorist, the disease has grown even more virulent and with it has survived the appellation of scorcher, but it no longer serves to define the malady accurately. For it is not merely the habit of scorching that is responsible—it is that innate pride and confidence in the capibilities of one's own possessions that has come down to us from Adam's day. Probably Cain had a pacer that could "eat up the road" in 2:10 or better and could give the dust to anything on four legs in those parts until Abel bought a bay trotter that could maks rings around Cain's single cylinder machine and then Cain started in to break the commandments. No man, however lowly be his state, likes to see another one go by him, particularly if the passer adds insult to injury by looking back in that tantalizing way that means "where on earth did you get that ancient model of perambulator and how do you expect to keep the road with anything like us—a brand new, 14 cylinder, 40 horsepower king of the highway? We could walk around you with the reverse in and the brakes set." It is certainly wonderful how much can be conveyed by a single look, but the man behind can read all this at a glance; in a fraction of the time it takes to tell it he has understood every word of it and more and his hands grip the throttle and spark advance simultaneously while his foot jams the accelerator down. He has caught the disease.

His tormentor looks back again and further aggravates it—so much so that he has to "notch up" a bit, too, and that aggravates it still further. Here then is a full-fledged case of the mysterious disease that has taken root and been fanned into full being within the short space of two or three minutes. How long it will last will depend upon when and where it strikes its victim: if on a country road it is apt to be of somewhat longer duration than otherwise and has been known to have a fatal ending in more than one instance. But not necessarily so, for its termination may be marked by the disappearance of a constantly diminishing and receding cloud of dust on the horizon that marks the flight of the contagion carrier. And once sufficiently removed from the source of infection, the victim quickly recovers until again subjected to it. An inconvenient obstruction that would not remove itself from the path of the oncoming car, or some derangement of a portion of the car's interior that brings it to an untimely halt by the wayside—these and many others may all mark its termination.

If it seize upon its victim within the confines of closely crowded civilization, its endings may be slightly different. True, it may terminate in the hospital or the police station under any circumstances, but it most frequently winds up at the latter when it happens to have struck "within the city limits." But here again there is some chance for the victim for he may be temporarily relieved in an instant by the sight of a policeman. The humble minion of the law with his bicycle and stop-watch probably never realizes how great a corrective influence his presence on the road really exerts over the malady. He knows the power of his eagle eye and warning upraised palm to squelch the would-be scorcher, to be sure, but these be only the ones that fall under his august glance—of those that see him first and become discreet on the moment he recks not. Their name is legion and only those who are afflicted with it in an absolutelly incurable form fail to cast off its fetters for the time being at sight of the law's upholder.

This "you-can-not-pass-me-with-that-car" disease, for it is difficult to conceive of any shorter appellation for it, attacks old and young, poor and rich alike, though the last named are most frequent victims, for like all things fashionable, it is an expensive malady in more ways than one and among other items, the bill may even include one for a wrecked car. It is only the old and experienced hand at the wheel—the chauffeur who has settled down into a coachman-like attitude of servility, that is proof against it and that only when he is alone, for he often becomes a victim by proxy under orders from the real sufferer who controls the car's speed through his servant. He "pays the freight," too, so the man notches her up a bit obediently and sees that there is nothing ahead of him to make dust. Left to himself he would be discreet and so far as outward evidence of interest was concerned, apparently never know that another car was passing him. This would be the act of a driver well-hardened and proof against the disease.

The tyro on the other hand, pays more attention to what is passing him than what is coming the other way and his hands are ever quick to reach for spark advance and throttle to make good his conviction if not his open boast that nothing on the road can pass him and particularly nothing that looks so seedy as the speeding vehicle that causes him to spurt ahead in defiance. If the car that happens to go by at a good clip be of the one or two lung variety and the victim is driving a four cylinder machine, it is equivalent to flaunting a red rag before an angry bull. He accepts the challenge on the spot and the disease immediately begins to get in its insidious work. How it ends has already been seen. Some single cylinder cars are speedy—not many of them to be sure, as compared with the modern four-cylinder car, but the few that there are running around are responsible for an endless amount of this nameless disease, and the man who keeps his eyes open on the road will see it every day. Even the stage of discretion that will permit an equal to go by leaving a cloud of dust in its wake, is roused from its apparent apathy at the sight of a little "one lunger" doing exactly the same thing and this is one of the anomalies of the malady. The driver who will carefully abide within the speed limit set by a non-motoring community despite the provocation of a dozen or more of his compeers fracturing it to his discomfort in the shape of dust and gasolene fumes, will immediately cast all caution to the winds the moment one of his inferiors attempts it. This is too much for even hardened experience and discretion to stand and he immediately proceeds to show the little man his proper place on the road. It is certainly a queer thing, this all-prevailing ill. It is curable, of course, but the recovery is never absolute. Given sufficient provocation it will break out anew and there seems to be no getting away from it, even to the end of time. Even the man who walks will not permit himself to be haughtily passed by one whom he considers his inferior in the matter of pedestrianism so what hope can there be for the motorist?

Novelty in Pressure Indicators.

A new indicator especially designed for internal combustion motors, has just been brought out abroad, in which the irregular action of the ordinary drum motion has been obviated by the use of a continuous card. The paper is made to travel from one of a pair of small positively actuated drums to another, in transit traversing a third drum, upon which the pencil presses. The drums being driven at a constant rate proportional to the piston speed of the engine, the card produced is similar in its characteristics to that obtained in the more common way. It is apparent, however, that the speed of the drums being constant for any one adjustment of the clockwork escapement which drives them, the indicator is suitable only for tests at constant speed. The apparatus is produced by Dobbie, McInnes, Ltd., of Glasgow, well known instrument makers.

Lingum Vitae for Bushings.

Lignum vitae bushings are said to have been employed in the connections of simple steering gears with considerable success by engineers abroad. The great advantage, of course, rests in the ease of lubrication, and the cheapness of the method, since a single coating of graphite grease is sufficient to serve well for a long time, and corrosion is impossible.

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ABOUT "STEERING SMALL"

What the Ability to do so Signifies and the Importance of it.

When the novice has reached the stage where he appreciates the importance of the injunction to "steer small" and can heed it, he has already mastered half the battle that must be fought ere he can snake the car in and out of traffic with that devil may care air of nonchalance that is affected by the professional chauffeur. And it is noticeable that the bigger the car and the smaller the individual behind the wheel the greater will be his air of insouciance; come what may, he is at the helm and his look of indifference is tinged with a pity that is akin to scorn when it lights on other and less speedy or wieldy forms of traffic. Were it not for the man with the bicycle and the stop-watch he could let her out and make speed despite the congested condition of the avenue. The big car responds instantly to his slightest touch; darts out of pockets that keep the slow going broughams and cabs penned for blocks at a time, makes the side street crossings just in the nick of time to forestall being stopped by a passing street car and goes around corners in a graceful sweep that shows the perfect control of its driver. And to the uninitiated eye all this appears to be accomplished with scarcely so much as a spoke's move of the steering wheel. It is the art of "steering small" par excellence.

The term is a nautical one and is the seagoing equivalent of the Mexican's "poco a poco"—little by little, and a little at a time as well. For the first inclination of the novice is to give the wheel a twist that swerves the car at right angles to the course it is following. If the latter be in a street a counter twist is imperative to save colliding with the curb and the result of this second turn must likewise be counteracted or the car will show an uncontrollable tendency to vault the opposite curb and dive into an areaway or mount a stoop. If the tutor be not quick to overcome this tendency to twist the wheel three times as much as is necessary and three times as fast it it should be done, the street is not a proper stamping ground for such a pupil. "Out in the open" is the only place for him and the need of a place where the beginner can neither hurt himself nor damage the car is well illustrated by the use of a racetrack for this purpose by one of New York's automobile schools. It is but the wabbling, careening flight of the new hand on the bicycle all over again and just as the experienced riders took care to give a wabbler a wide berth in passing, so do drivers of other cars scent the automobile wabbler at a distance and slow down to a discreet and instantly controlled pace when in his neighborhood, for the ways of the wabbler passeth understanding; there is never any telling what he will do next. The cyclist soon learned that it required no violent twist of the handle bar to round a corner and a scarcely perceptible movement sufficed to guide the machine under any circumstances.

This is the essential that the novice at the steering wheel of a car finds it hardest to master. With the necessity of rounding a sharp turn before him or with something bearing down on him at speed making a collision seem inevitable to his inexperienced eye, the inclination to jerk the steering wheel around is one that is exceedingly difficult to overcome. But upon his ability to free himself from this delusion will depend his adeptness in acquiring the art. As in everything else some beginners take to it like a duckling to water, before they have run the car five miles they have become comparatively proficient in rounding corners and avoiding obstacles and are already in a fair way to obtaining an excellent measure of control over the car.

At the other extreme is the man who is so entirely engrossed in the manipulation of the change-speed lever, even after he has put it home—the spark and throttle levers and the clutch and brake pedals that he has no eye whatever for where he is going. He is the type that represents the bete noir of the instructor. For the first few lessons it seems to be a practical impossibility for him to realize that it is of far more importance to watch the road than the various adjustments of the mechanism—once placed they stay where they are, but the necessities of steering vary every moment. Usually this type of beginner is firmly of the opinion that man should have been created with at least three hands and feet in order to be able to manipulate all the various levers and pedals that surround him.

It is not only hard to break him of the trick of running all over the adjacent scenery every time he wishes to turn a corner or avoid an obstruction, but even after he has reached a stage where he is apparently well in hand and has come to a point where a realization of the relative importance of the various operations has dawned upon his mind, he is still apt to give way to the wheel-jerking habit should an emergency arise. If he be confronted by another car rapidly bearing down upon him, or happens to be caught in a tight place, the lessons and cautions of his long novitiate are apt to be thrown to the winds Unless the other driver happens to have sized up the condition of affairs quickly enough to make up for the mistakes of the novice, a crash is the usual result. And many a one of this kind has been put down to a "defective steering gear," and the fact that the steering wheels have been found more or less tightly locked after the accident seems to bear this out. As a matter of fact, there was nothing whatever wrong with the steering gear until its manipulator locked the wheels in his frantic endeavors to get the car out of the way of another oncoming vehicle by main force applied to the steering wheel.

His Initial a Misleading One.

One of the developments of motoring is the great increase in the number of places where gasolene may be purchased. There is hardly a hamlet that boasts of a general store that does not keep a small supply of the volatile fluid on hand for the convenience of motorists and the enriching of their own exchequers. On the way from Williamstown to Pittsfield the motorist encounters evidence of this in a form that is highly amusing. The following sign adorns a tree near a village:

"Automobiles must not go faster
eight miles an hour.
"J. Olcott, Town Clerk.
"Get your gasolene from J. Olcott."

It is a subtle combination of municipal duties and private endeavors.

Nantucket Forced to Lift Ban.

The officials of Nantucket Island opened the summer season by announcing that automobiles would not be allowed at the resort. Now they have come to realize what they should have known from the first—that the selectmen of Nantucket have no power to keep the machines off the island. Their enlightenment was hastened by the report that several automobile owners would legally test the self-imposed czar-like powers of the local "fathers." The latter consulted J. M. Swift, of Fall River, who acts as legal adviser to Nantucket, and Mr. Swift told them Nantuckians would have to submit to the introduction of motor-vehicles as the selectmen were powerless to debar them from the island.

Country Club for Motorists Only.

The only country club in America, if not in the world, whose membership roll contains only the names of automobile owners, the Hermitage Country Club, on the famous estate by that name just outside Worcester, Mass., was opened Saturday, about one hundred prominent New England motorists being present to inspect the club house. At the stag dinner in the evening the following officers of the permanent organization were elected: President, J. A. Rumrill, Springfield; vice-presidents, Quincy Adams Shaw, Jr., of Boston, and Chester W. Bliss, of Springfield; secretary, George A. Beale, of Boston; treasurer, Irving Swan Brown, of Worcester.

It has been decided to throw open the Brunig Pass through the Alps from Interlaken and Lucerne to automobiles once more. Permits will be required, however, and the passes granted at one terminal must be surrendered at the other. An average speed of six miles an hour will be the maximum allowable speed.

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Car that Increased in Value with Age.

Tales of the rapid depreciation of motor cars are common enough to be believed, but when someone arises to state that within his recollection a certain car has doubled in value within six months, passing at the same time through four different hands, the statement smacks of Munchausenism. The tale runs, however, that Girardot, of the present C. G. V. firm, bought a Panhard car in 1896, paying for it $1,200. It was but a small car, and probably not overly reliable according to present standards. It pleased him well, however, and in a short time his praises of it served to find a market for it at the hands of De Knyff, who laid down $1,400 in exchange for it. He, in turn, disposed of it to Etienne Giraud, who tells the tale in a recent article, and who admits he gave up $1,600. Six months later, he found a friend in Baron de Rothschild, who was so anxious to become possessed of it that he gave Giraud $2,400 for it. But what is more interesting than the fact that each of its four early owners later became identified with the industry in an important way, is the statement that the car has survived even to the present day, and is still in existence, though no longer for sale. What must have been its original powers of endurance, is quite beyond conjecture.

Locating Leak in Carburetter.

Leaky spots in a faulty carburetter float may be located by immersing the part in boiling water, and carefully marking the points from which bubbles exude. As soon as this has been done, and before they have ceased to rise, the float should be withdrawn from the water and gently heated, to dry it and prevent the water from working inwardly. When it is comfortably warm to the hand, it may be safely assumed that any gasolene which has been imprisoned in it has been evaporated, and the repairing process may be commenced. In this, it is essential that the least possible amount of solder be used, and that after the leak has been stopped it should be tested by flotation to see that the balance has not been disturbed. In case it fails to "trim" properly, bits of solder must be distributed about it, to secure the desired result. Subsequently, the level of the carburetter should be carefully tested, and the needle valve adjusted to close at the proper point.

Care Needed with Gas Lamps.

In filling acetylene lamps, care should be taken to see that the carbide basket is not more than half to three-quarters filled, as the slaking process causes a considerable increase in volume, and unless this precaution is taken, there is danger of overstraining the retaining vessel. Another point which should not be neglected, is that of thoroughly cleaning the contact surfaces when the generator is reassembled after filling, as even a single particle of carbide left in the joint may be sufficient to cause a serious leak, if not a toy conflagration.

Oil and Water for Dust Laying.

"Emulsifix" is the title of the latest compound evolved as a means of aiding in the solution of that pressing problem, dust laying. It is of English origin and despite its high sounding appellation, consists of nothing more or less than a mixture of oil and water. It is, in fact, a complete refutation of the trite saying that oil and water will not mix.

The oil and water are carried in what appears to be a watering cart of the usual type but which is provided with separate receptacles, communicating with a third tank into which the ingredients may be introduced in any proportion desired. The compound as employed consists of two to five parts of oil to 95 to 98 parts of water and the mixture is subjected to the action of a rapidly rotating paddle wheel turning on a shaft in the center of the tank and actuated by a chain from the road wheel of the cart itself. The oil is thus broken up and mixed uniformly in a fine state of subdivision with the water, and this emulsion of oil and water is distributed over the road in a fine spray in the usual manner.

Trials made on several stretches of road subjected to a great deal of automobile traffic are said to have been highly successful, the cost per mile per season having been reduced from $250 on the average to $50, making it cheaper than water sprinkling alone. The emulsion is claimed to keep the road free from dust for several weeks at a stretch, thus making only six or seven applications necessary during the course of the season, beside which it is said to have a beneficial effect on the macadam in that it tends to bind the surface together.

Racing Unprofitable, A. R. A. Retires.

The Automobile Racing Association of Buffalo, N. Y., has at last discovered that automobile track racing does not net large returns to the promoter. Justice Pound has issued an order directing all interested persons to show cause why the association should not dissolve. This is a voluntary dissolution on the part of a majority of the directors who give as their reason that the Automobile Racing Association was engaged in a hazardous enterprise. It will be remembered that at the last track meet held in Buffalo, last summer, Webb Jay, went through a fence and nearly lost his life.

Evidence of Popularity.

"Common as flies in a cheap restaurant" is the manner in which the scribe of an inland daily takes to convey an idea of the number of automobiles that are now to be seen in the streets of every large city. Nothing short of an automobile accident now seems sufficient to attract the curious crowds that formerly gathered about a car whenever it came to a halt at the curb.

How a Car Won a Custom House.

Except for the speed of an automobile, Atlanta would have lost her $1,000,000 appropriation for the new custom house—and lost by a space of only three minutes.

Congressman L. F. Livingston, who has just returned to his native heath from Washington, tells the story:

"Congress was about to adjourn Saturday night at 10 o'clock," says Colonel Livingston (every politician is a colonel south of Mason and Dixon's line), "and at 5 minutes to 10 the bill had not been signed by the President. What mixed matters all the more was the fact that the President had left for the White House. Four minutes to 10 came and the bill was still unsigned. I'll tell you, we were getting shaky.

"Everything depended on whether or not an automobile in which we had hurried the bill over to the White House for the executive signature would return before the clock struck. This interim was one of the most ticklish suspenses I've ever felt.

"But the automobile made good time. Just before the watch hands pointed to 9:57 the chauffeur raced in, and Atlanta was thus assured of one of the handsomest buildings in the nation."

Mixture to Prevent Rust.

A good mixture to prevent the rusting of machinery is made by dissolving one ounce of camphor in one ounce of melted lard; skim off the impurities and add enough black lead to give the mixture an iron color. After cleaning the machinery carefully, smear on the mixture. It can be left on indefinitely, or if wiped off after twenty-four hours will prevent rust for some time. When removed, the metal should be polished with a soft cloth.

Speed Limit of Limousines.

Parisian carriage builders have been at pains recently to warn owners of cars with heavy bodies, such as the limousine type, that the speed limit of such a vehicle is greatly less than in the case of an open car. Going more than 35 miles an hour with such a car is nothing less than courting disaster, say these authorities, and the situation is considerably aggravated when, as has come to be a habit, the chauffeur has piled spare tires and trunks on the roof.

FOR IMMEDIATE DELIVERY.

One Locomobile Limousine

1906 Model. 15-20 H. P.

Entirely new and never been used. We invite you to inspect it.

PRICE IS RIGHT.

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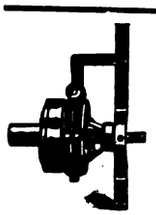
1619 BROADWAY.

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This man runs a "ST. LOUIS"

ST. LOUIS MOTOR CAR CO.
PEORIA, ILLS.



The Ball Improved Transmission
and REVERSE GEAR for
AUTOMOBILES AND MOTOR BOATS.
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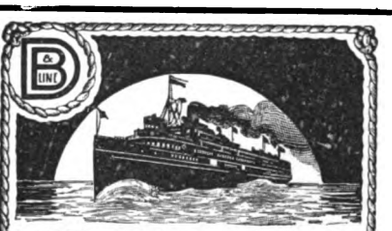
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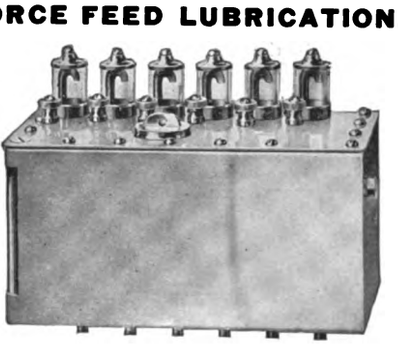
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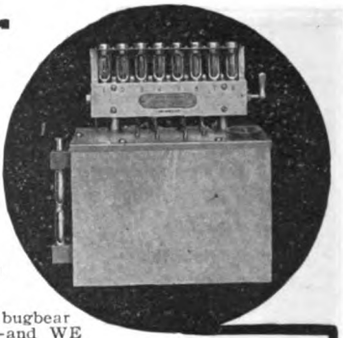
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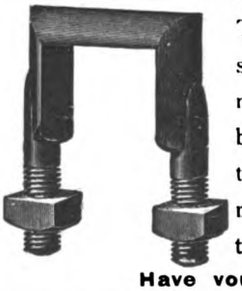
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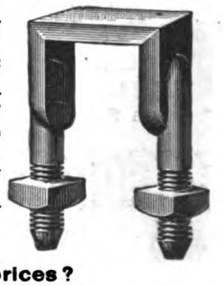
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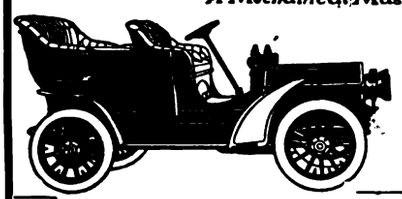
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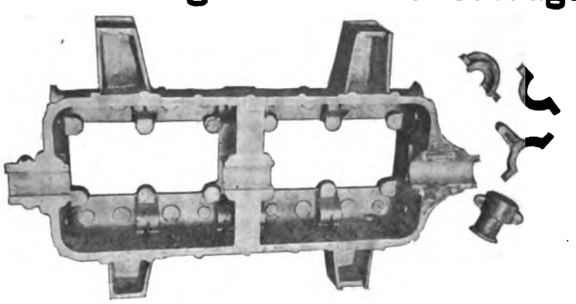
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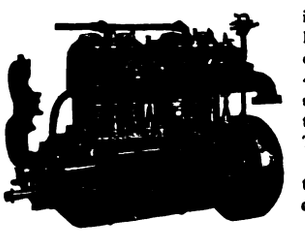
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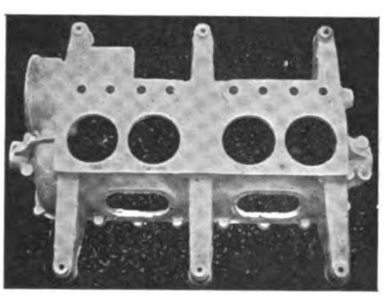
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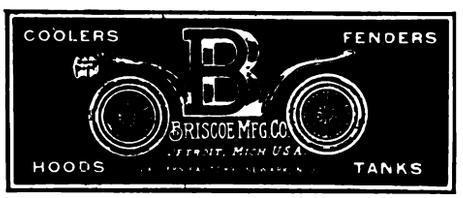
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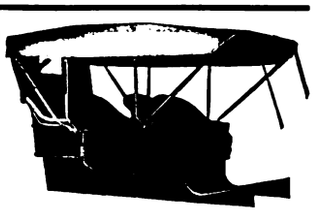
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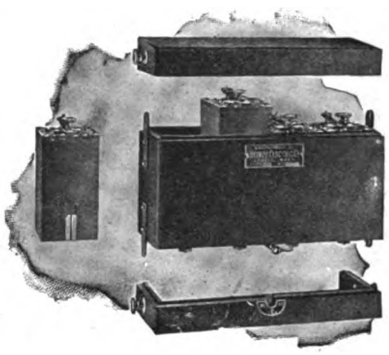
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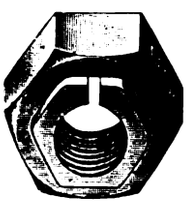
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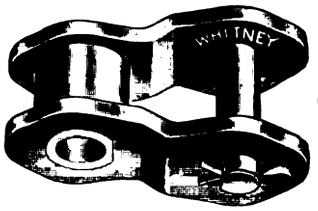
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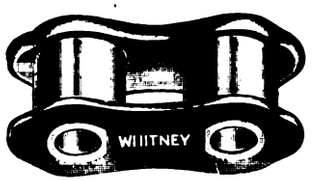
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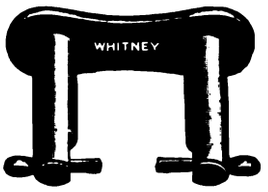
Connecting Link



OFFSET LINK



Assembled Center Block

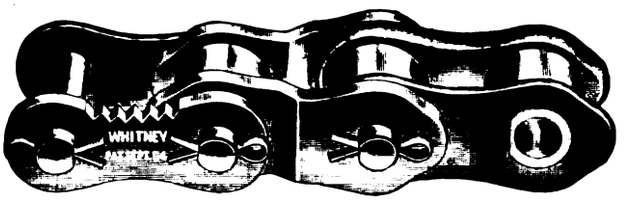


Side Link with Rivets Assembled



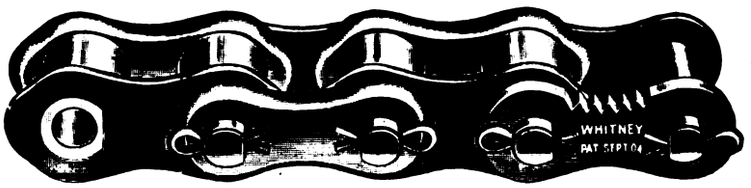
Side Link Plain

"Whitney" Offset Links for use when it is required to shorten or lengthen a chain only one Link.

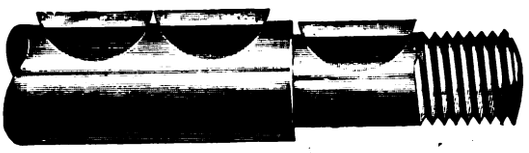


Against claims made by Competitors, we submit the following list of Motor Car Manufacturers using "WHITNEY" ROLLER CHAINS and STANDARDS. Is it not time for everyone to admit that "WHITNEY" STANDARDS for ROLLER CHAIN dimensions are now the American Standards?

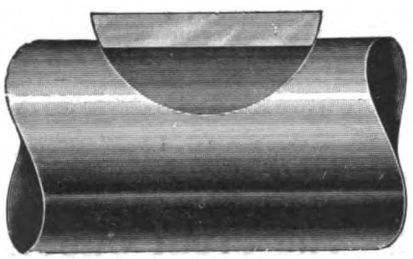
"ADAMS-FARWELL" "ADAMS VEHICLE CO." "AMERICAN MOTOR TRUCK" "AUTO-CAR EQUIPMENT" "BAKER" "BERKSHIRE" "BIDDLE-MURRAY" "CADILLAC" "COLUMBIA" "CHAMPION (McCrea)" "CROWN" "CRAWFORD" "COLUMBUS BUGGY CO." "ELWELL-PARKER" "FORD" "FRANKLIN" "GAETH" "GALE" "GROUT" "HEWITT" "THE HOLMES" "IROQUOIS IRON WORKS" "KNOX" "LAMBERT" "LEAR" "MATHESON" "MACK BROTHERS" "MITCHELL" "MOLINE" "NEW YORK MOTOR TRUCK" "OLDS" "PACKARD" "RAMBLER" "RAPID" "REO" "SIMPLICITY" "STEARNS" "THOMAS" "TOURIST" "WAYNE" "WESTERN MOTOR TRUCK" etc.

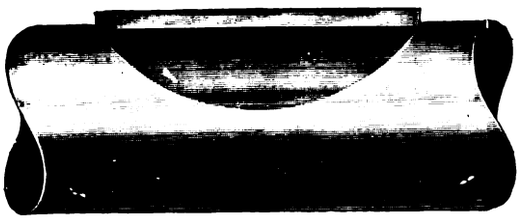


Detachable Type Patented









The Woodruff Patent System of Keying has been adopted by the Leading Manufacturers of Motor Cars, Machinery, etc. It is more mechanical, more efficient and also a great labor saving invention.

We carry over 50 sizes of KEYS and CUTTERS in stock for immediate delivery.

THE WHITNEY MFG. CO.,

Hartford, Conn.

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When you take that cross-country trip

you can't be too sure that your tires will be equal to any bad-road emergency. A little precaution taken at the start may save a lot of trouble on the way. Don't take any chances—don't spoil the trip. Use

Every tire a *good* tire. We have no special tires for special uses. You can be sure of the quality of the tire *you* buy.

You may never have occasion to use the reserve strength that is put into these tires (we hope you won't) *but it's there if you do.*

MORGAN & WRIGHT TIRES

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

CLINCHER——DUNLOP
BAILEY "WON'T SLIP" TREAD

MORGAN & WRIGHT, CHICAGO

NEW YORK BOSTON CLEVELAND DETROIT ATLANTA KANSAS CITY LOS ANGELES PORTLAND
SYRACUSE PHILADELPHIA DAYTON MINNEAPOLIS ST. LOUIS DENVER SAN FRANCISCO

Elmore Makes a Perfect Score!

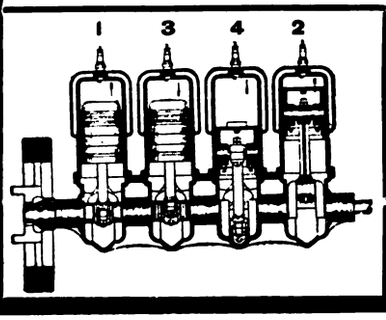
In the recent endurance run from Los Angeles to Riverside and return, three ELMORE Two-cycle cars gave most conclusive proofs of their quality.

ELMORE owned by Edwin K. Alpaugh and driven by Wren Burnwood, carrying five people, made 1000 POINTS—***a perfect score.***

ELMORE owned and driven by C. S. Anthony, carrying five people, finished with 999 points out of a possible 1000.

ELMORE owned by J. H. Wood and driven by A. J. Smith, carrying five people, received 998 points out of a possible 1000.

You'll want to know more about this famous car, which made so notable a showing.



Write to-day for complete information.

Model 15, Four Cylinder, Two-cycle Elmore, $2,500.

THE ELMORE MANUFACTURING COMPANY,

1104 Amanda Street, CLYDE, OHIO.

Member Association of Licensed Automobile Manufacturers.

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TO SELLERS AND USERS

OF

CLINCHER TIRES

We have commenced and are vigorously prosecuting suits for infringement of our patents against the Pennsylvania Rubber Company and the Michelin Tire American Agency, Inc., on account of the sale of Clincher tires.

The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J Patents:

G & J Tire Co.
Hartford Rubber Works Co.
Morgan & Wright.
B. F. Goodrich Co.
Diamond Rubber Co.
Goodyear Tire & Rubber Co.
Fisk Rubber Co.
International Automobile & Vehicle Tire Co.
Continental Caoutchouc Co.

G & J TIRE CO.

Indianapolis, Ind.

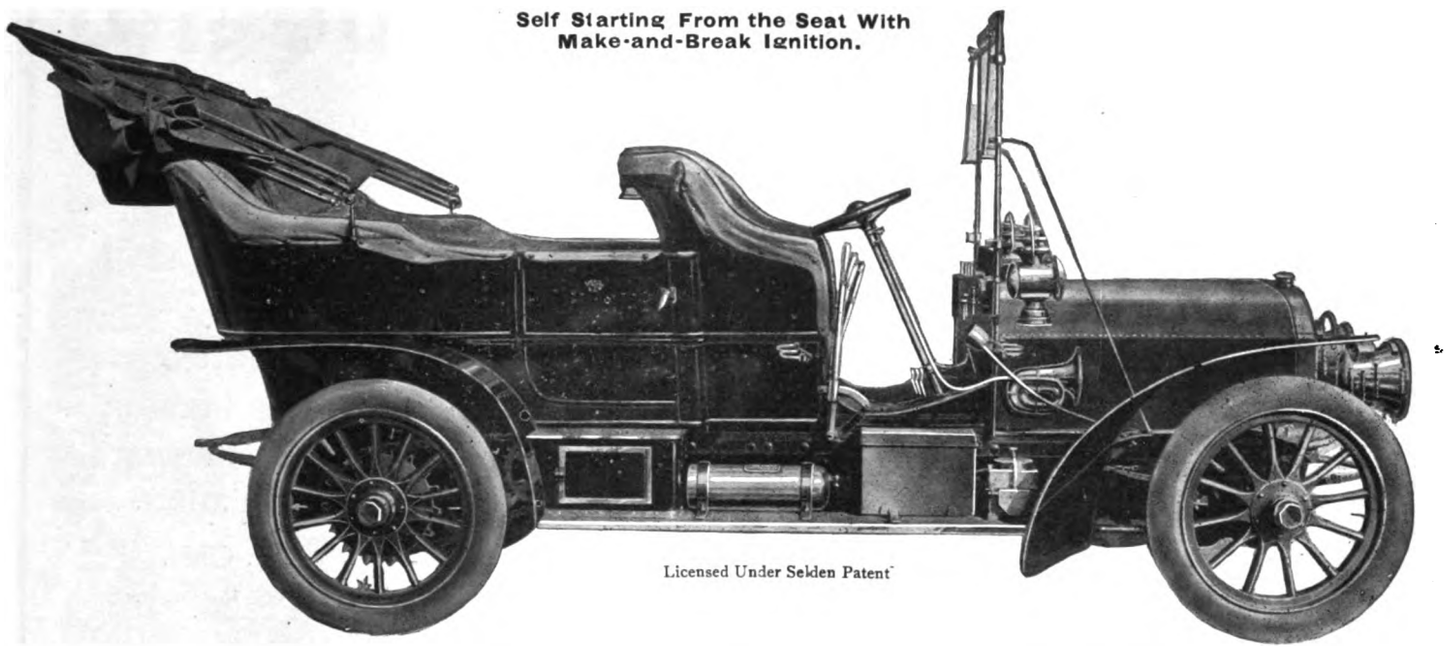
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CHROME-NICKEL STEEL used throughout in construction of shafts, transmission and gears

"Matheson"

HESS-BRIGHT IMPORTED — ball-bearings secure perfect transmission of power from engine to wheel.

Self Starting From the Seat With Make-and-Break Ignition.



Licensed Under Selden Patent

THE MATHESON COMPANY OF NEW YORK,

FACTORY, WILKES-BARRE, PA. — 1619 BROADWAY, near 49th Street. — ONE YEAR GUARANTY.



THE 50 H. P.

THOMAS FLYER

$3,500.00

With a dual engineering force keeping careful watch in Europe and America, no feature on either side of the ocean that makes for leadership is ignored or overlooked in the Thomas.

French and American brains to create, plus the superior quality of American skill to execute, made the 1906 THOMAS the foremost car in either world.

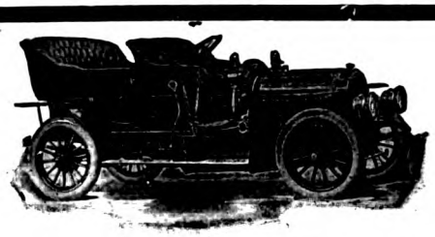
The 1907 model of this famous car will further widen the gap between the Thomas and all the rest.

Watch for an early announcement of the Greater Thomas Flyer.

The Thomas Motor Company

1416 Niagara St., Buffalo, N. Y.

Members Association of Licensed Automobile Manufacturers.



WHY IS THE

ROYAL TOURIST

FAMOUS?

ASK AN OWNER.

ROYAL

Model G. $3500 00 40 H. P.

THE ROYAL MOTOR CAR CO.

Cleveland, Ohio.

AGENTS: C. A. DUERR & CO., New York, N. Y.; G. J. DUNHAM, Boston, Mass.; THE McDUFFEE AUTOMOBILE CO., Chicago, Ill.; G. W. CAPLIN, Minneapolis, Minn.; AUTOMOBILE & SUPPLY CO., Lim., Toronto, Ont.; MOTOR SHOP, Philadelphia, Pa.; REYBURN MOTOR CAR CO., St. Louis, Mo.; STANDARD AUTOMOBILE CO., Pittsburg, Pa.; AMOS-PIERCE AUTO CO., Syracuse, N. Y.; SCHOEFFEL CO., Rochester, N. Y.; ROYAL MOTOR CAR AGENCY, San Francisco, Cal.

Member A. L. A. M

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TRADE MARKS
PIERCE CYCLES
PIERCE STANHOPE TRADE MARK
MOTOR CAR

The George N. Pierce Company.
Makers of
Pierce Cycles
Pierce Stanhope and Arrow Motor Cars.
Established 1865 "With us since Bought & Sold"

London England June 26th 1906

The B F Goodrich Company
Akron Ohio

Dear Sirs
I take pleasure in certifying that I used the "Goodrich" make of clincher tires on the Pierce "Arrow" car entered in the Herkomer Contest the most important event of its kind in Europe And further testify that the tires did not require any attention throughout the said Contest not having been pumped up after the first time they were put on the machine although the car run a considerable distance before the Contest started Judging from what we saw along the roads of trouble other people were in with their tires I think I was to be congratulated on the choice of "Goodrich tires for this event Furthermore as far as I know this was the only make of tire that went through the entire Contest without having a pump put to them This was really the first time that "Goodrich" tires were used on the continent and not only caused a great deal of surprise but towards the end of the Contest a great deal of wonder at the way in which they stood the test of stony roads and the very few and slight scars they showed from the journey

Yours very truly Percy P. Pierce

Goodrich Tires

invade European soil in the celebrated Herkomer automobile contest and win for American skill the highest praise.

They stood the test—in fact the only tires in the contest not touched for repairs or inflation.

THE B. F. GOODRICH COMPANY, - - - - Akron, Ohio.

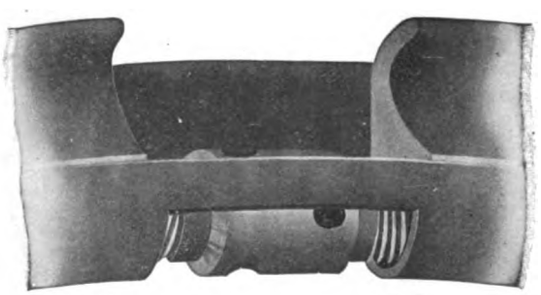
Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

NEW YORK—66-68 Reade St. & 1625 Broadway. OAKLAND, CALIF.—Fourth & Washington Sts.
CHICAGO—24 E. Lake St. CLEVELAND—2188 9th St., S. E.
BOSTON—161 Columbus Ave. PHILADELPHIA—909 Arch St.
BUFFALO—731 Main St. DETROIT—80 E. Congress St.
DENVER—1444 Curtis St. ST. LOUIS—3926-28 Olive St.
LONDON, E. C., 7 Snow Hill.

Pioneer Steel Wheel and Universal Rim Manufacturers of the World

Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

Sole Makers of the HARTFORD UNIVERSAL RIM for DUNLOP AND CLINCHER TIRES



MIDGLEY MANUFACTURING COMPANY, - - Columbus, Ohio.

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Contestants in Class III.

Price	Name	Time
$1800	Mitchell	0:43¼
$2250	Olds	0:43⅘
$2500	Ford	0:44⅘
$2500	Ford	0:45½
$2800	Franklin	0:51⅘
$2500	Rambler	0:51⅘
$2000	Queen	0 52½
$2250	Olds	0:52¾
$3000	National	0:54
$3000	Frayer-Miller	0:54¼
$1800	Franklin	0:59½
$3000	Marmon	0:59¾

Besting also the following in Class IV.

$4000	Thomas	0:45
$3500	Royal	0:46
$3500	Thomas	0:59½

And the following in Class V.

$3500	Royal	0:47

Wherever the Mitchell Tries, It Wins

THE MINNEAPOLIS

Mitchell Automobile Won Prize Cup for Hill Climbing

It Is a Handsome Affair, Donated by Leopold Metzger of S. Jacobs & Co.—Now on Exhibition at Garage of Auto Construction Company.



Mitchell car that won the fine cup made by Jacobs, in the recent auto hill climbing contest.

The 30-horse power Mitchell automobile created an enviable record for itself when it crossed the tape in the hill climbing contest at the Riverside hill driveway in 43½ seconds, thus winning the finest valuable motoring trophy ever offered in an automobile contest in the Northwest.

The course is 2,000 feet in length, and has a rise of 76 feet. It contains one hard turn and presents several minor inequalities, but the roadbed on the day of the contest was firm and dry, offering the drivers an excellent opportunity to demonstrate the worth of their respective machines.

With the exception of the class in which the stripped and freak cars were allowed to enter, the chief interest was undoubtedly centered in Class 3, as it was in this class that the higher priced and popular cars were running. Considerable rivalry had been existing among most of the dealers and owners, and, as had been predicted, the finishes were close and exciting, with the Mitchell winning out by the mere fraction of a second.

It sailed up the incline in a beautiful manner, with the driver and his assistant leaning far forward in order to afford the least resistance to the wind. Their run was the best of the day, with the probable exception of that made by the little steamer which set a new record for the hill.

The $1,800 car made unusually good showing in competition with its $2,500 and $3,000 rivals.

Considerable credit for the excellent record made by the Mitchell must be given to the daring and skillful manipulation of the levers and wheel, for had not the driver been perfectly cool and well able to handle his car, disastrous results might have been expected. Earnest Simpson, who brought the car successfully over the line a week ago Saturday, has plenty of nerve as well as skill, and will drive the Mitchell in all future speed contests.

C. C. Evans, of the Auto Construction Co., the owner of the machine in question, is now exhibiting to his friends the handsome trophy cup which he won in the hill climb. It is without doubt one of the most beautiful cups ever offered for any automobile race in the Northwest.

It was donated by Leopold Metzger of S. Jacobs & Co., jewelers, 518 Nicollet avenue. Resting on a pure ebony base, it stands two feet high, is made of solid sterling silver, and is lined with a thin covering of gold. It is adorned with a miniature automobile at the top, while a decidedly effective finish is given by three large handles each with a mercury wheel at its base. It is on exhibition at the Auto Construction Co.'s Garage, 1401 Hennepin avenue.

WE HAVE been so busy trying to get out cars enough to fill our orders that we have not had time to engage in the races, hill-climbing contests, etc., which are continually being pulled off.

It is a peculiar and very significant fact, however, that whenever the MITCHELL has tried it has WON, beating out cars at often DOUBLE the price.

What will happen if we ever have time enough to follow the lead of others, make up special cars and "go after" these records instead of picking them up incidentally here and there with stock cars is a matter of conjecture.

Our customers say that no matter what test is given the Mitchell, it has a most gratifying habit of "making good."

Our handsome Art Catalogue (price 10c) will tell you about the Touring Car at $1800 which has made dozens in the $3000 to $5000 class look foolish. Write for it.

Mitchell Motor Car Co.

104 Mitchell Street, Racine, Wis.

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NOW READY TO MAKE SAMPLES.

BRISCOE RADIATORS

NEW DESIGNS. IMPROVED CONSTRUCTION. PERFECT DELIVERIES.

Knowing that the American automobile trade looks to us as the leading manufacturers of radiators, to make as great progress in our department as car designers and others are continually making in theirs, we have spared no effort and expense in development work. We have learned much this past season, not only from experience, but by study and experiment as well. Our effort is always toward scientific design, as well as strong and artistic finish.

There will be no radical change in design this season, but a number of vast improvements in construction and details. For example, in our Flat Tube type a new method of construction adds between 10% and 25% in efficiency for the same weight and cost. Our Detroit Honeycomb can now be made with true square openings, as well as diamond shape, adding greatly to its appearance, and the increase in its efficiency, produced by improved construction during the past season, has proved very valuable.

For low priced jobs our Staggered Gang Fin type, always highly efficient, has now been made so simple of construction that its use will doubtless be widely extended this season. We have numerous other types, as almost all of the successful American types have originated in our shops.

We have earnestly studied the mounting of radiators as we find that the great majority of leaks are caused by faulty mounting. We would be pleased to offer suggestions on this point.

We are now putting in our own brass foundry, which will eliminate the only point where we have been held up for supplies this season and we are discontinuing all lines of business except automobile parts. With our two plants, employing up to 800 hands, duplicate equipment and our duplicate pattern system, the chances of delay through fires, strikes or accident are reduced to a minimum. Our improved and thorough system of inspection gauges, now in effect, renders mistakes almost impossible.

We are also the largest single manufacturers of hoods, fenders, tanks, dashes, steel decks, etc. Catalog on request.

NOTE—For a few weeks, in this and other papers will appear a series of articles on radiators by Frank Briscoe, to which we invite your attention. There are now on the press the following: No. 1, Types of Radiators; No. 2, Radiator Efficiency; No. 3, Radiator Mounting; No. 4, How to Buy Radiators. Others will follow. Watch for them.

DO DELIVERIES COUNT WITH YOU?

Write. Wire. Telephone. Call.

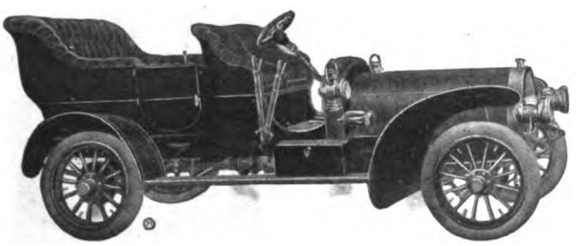
BRISCOE MFG CO.

DETROIT, MICH.
NEWARK, N. J.

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National

WORLD'S RECORDS
FOR
1000 Miles and 1094 3/16 Miles in 24 Hours
Made Nov. 17th, 1905
STILL STANDS UNEQUALLED.



4 Cyl. 35-40 H. P. $3000. 6 Cyl. 50-60 H. P. $4000.

NATIONAL RELIABILITY AND ENDURANCE ARE HARD TO BEAT.

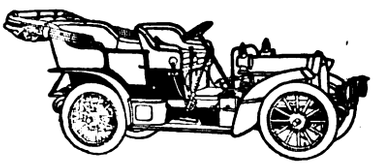
Write for Particulars.

WATCH FOR THE ROUND RADIATOR

National Motor Vehicle Co.
1007 E. 22d STREET,
Indianapolis, Ind.

WATCH FOR THE ROUND RADIATOR

• *Member American Motor Car Manufacturers' Association, N. Y.* •



Our catalogue omits generalities. Dwells on the specific points in which the automobilist is interested.

Locomobile

COMPANY OF AMERICA
BRIDGEPORT, CONN.
Member A. L. A. M.

Whitlock Coolers
FOR 1907

WILL BE THE STANDARD FOR HIGH-GRADE CARS.

Do not waste time and money on experiments.

If prompt deliveries appeal to you, you will be interested to know that we already have **the** largest factory in America engaged in manufacturing cellular coolers, and that we are now erecting a second and larger building which will more than double our present capacity.

In addition to cellular coolers, we make **disc radiators** of several types, **hoods, exhaust** and **inlet pipes** and **headers, muffler** pipes and bent and brazed work of every description for automobiles.

THE WHITLOCK COIL PIPE COMPANY,
HARTFORD, CONN.

The B & S Steering Connections.

B TRADE MARK B TRADE MARK



DROP FORGED OF STEEL AND MACHINED READY FOR USE.

EASILY ADJUSTED.

In two sizes, for light and heavy vehicles.

Described in our illustrated catalogue. Ask for it.

THE BILLINGS & SPENCER CO., - Hartford, Conn.

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"The Maxwell"

Perfectly Simple
Simply Perfect



20 H. P. Touring Car, $1,450

WHAT DO THE OWNERS SAY?

That is the best question to ask when selecting an automobile.
Maxwell owners are the Maxwells's best advertisements.
The contentment and satisfaction that stand out all over them is the "most catching" thing in the motor world.
Just talk to one of them and get the "sunny side" of the automobile question.

Multiple Disc Clutch. Three-Point Suspension of Motor and Transmission (Unit). Metal Bodies. No Noise. No Vibration.

Send for our book "Facts and Testimony," which contains letters from 32 owners who enjoy telling what they know of the "Maxwell."
Free to those sending for our catalogue.

Write Department 2.

MAXWELL-BRISCOE MOTOR COMPANY

Members American Motor Car Manufacturers' Association.

CHICAGO, ILL. FACTORIES: PAWTUCKET, R. I.

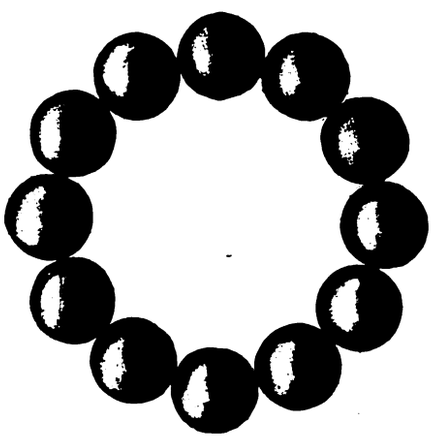
Main Plant: TARRYTOWN, N. Y.

BRANCHES:

Maxwell-Briscoe, Inc., New York, N. Y.
Maxwell-Briscoe-Chase Co., Chicago, Ill.
Fisher Automobile Co., Indianapolis, Ind.
Morrison-Tyler Motor Co., Boston, Mass.
Maxwell-Briscoe-McLeod Co., Detroit, Mich.
Maxwell Garage, Brooklyn, N. Y.
J. W. Willcox & Son, Los Angeles, Cal.
Richard Irvin & Co., New York City.



10 H. P. Tourabout, $780



ANNOUNCEMENT

"Standard Alloy Steel Balls"

made of ALLOY STEEL, now ready for delivery.

Double Crushing Strength Ordinary Balls

¼ inch Crucible steel balls' crushing strength, 50,000 to 56,000 lbs.
¼-inch "STANDARD ALLOY" steel balls, 95,00 to 100,000 lbs.
Guaranteed true to .0001 inch in diameter and sphericity.
Prices quoted on request.

Standard Roller Bearing Co.

48th and Girard Avenue, - - PHILADELPHIA

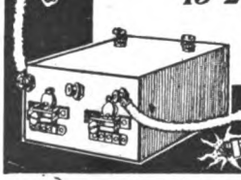
SPLITDORF COILS

THE STANDARD OF THE WORLD

Avoid any chance of trouble by seeing that your coil bears the name SPLITDORF.

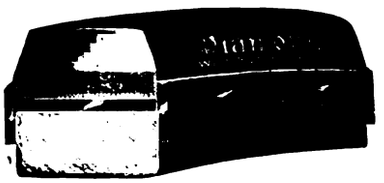
C. F. SPLITDORF

15-27 Vandewater St., New York



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Before the Arrival of



Diamond
Wire Mesh Base Construction
For Motor Trucks and Commercial Cars

most of the tire offerings for this work were of the old buggy tire shape, with a high, round, narrow tread. All of the weight of "Road locomotives" had to be supported on a very narrow strip of comparatively soft rubber.

¶ Two great evils resulted:
¶ The narrow wearing surface was quickly worn and ground away, and—
¶ The tire was forced to flatten materially under load. That required power. And it is exactly this flattening and springing back into shape that weakens rubber and hastens its disintegration.
¶ Hence the buggy tire shapes were failures
¶ Diamond Wire Mesh Base Construction was designed and built to avoid the weaknesses of other tires, and it has done it.
¶ Compare the low, flat shape of the new tire with the high, narrow tread of the old buggy tire shapes.
¶ **Nearly double the area is presented to the ground by Wire Mesh Base Tires**
¶ This gives enormous traction, and the strain is distributed over a large surface, instead of being confined to a narrow strip of rubber.
¶ The shape and the toughness of the rubber preclude the necessity of distortion. This saves power, gives the best grip on the ground, and prolongs the life of the tire.

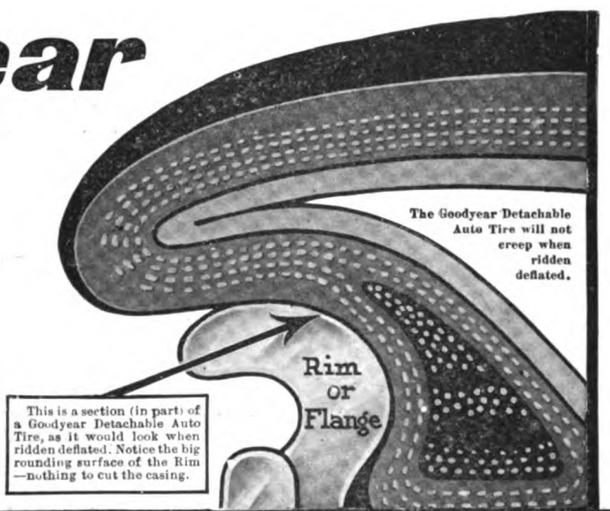
THEN IT'S THE TIRE FOR YOU.

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

NEW YORK—78 Reade St.
NEW YORK—1717 Broadway.
BOSTON—174 Columbus Ave.
PHILADELPHIA—304-306 N. Broad St.
BUFFALO—715 Main St.
DETROIT—258 Jefferson Ave.
ST. LOUIS—3966 Olive St.
CHICAGO—1523-31 Michigan Ave.
CLEVELAND—1514 Euclid Ave.
SAN FRANCISCO—
MINNEAPOLIS—503 Second Ave., S.
DENVER—1735 Arapahoe St.

The Goodyear
DETACHABLE
AUTO-TIRE
ON
Universal Rim

can be ridden deflated for miles over country roads or rough pavements without material injury, for it



This is a section (in part) of a Goodyear Detachable Auto Tire, as it would look when ridden deflated. Notice the big rounding surface of the Rim—nothing to cut the casing.

CAN'T RIM-CUT

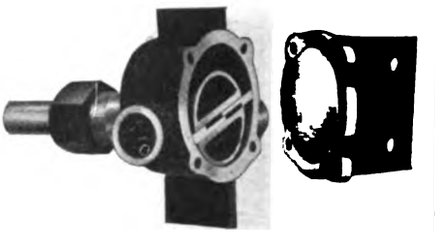
The illustration plainly shows why. Call at any of the following stores and learn the dozens of other trouble and time-saving features

Boston, 261 Dartmouth St.
New York, cor. Sixty-fourth St. and Broadway.
Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
Buffalo, 719 Main St.
Denver, 220 Sixteenth St.
Detroit, 242 Jefferson Ave.

The Goodyear Tire and Rubber Co., Grove Street, Akron, O.

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HAYNES COOLING SYSTEM



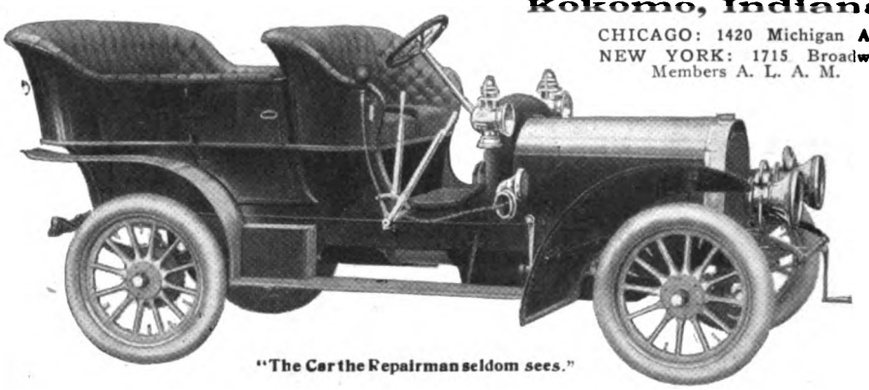
UNUSUAL attention has been given to the cooling of Models "O" and "R"—the 1906 Haynes cars—and unusual results have been obtained. On a 5000 mile journey not once did either of these engines get hot enough to cause a single explosion after the spark was shut off.

Two fans, one back of radiator, the other in fly wheel, sweep the air through the radiator and over the engine, and the very large volume of water around the valves also greatly assists in cooling. The water pump is so simply and strongly constructed that it cannot get out of order. In spite of severe freezing weather on the January trip of Model "R" from New York to Chicago—over 1100 miles—there was no trouble whatever with cooling system, nor was any "anti-freezing compound" used.

The Haynes is the **highest-powered shaft-driven Car built** In requesting catalogue, for prompt attention address Desk D 23.

HAYNES AUTOMOBILE CO.
Kokomo, Indiana.

CHICAGO: 1420 Michigan Ave.
NEW YORK: 1715 Broadway.
Members A. L. A. M.



"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5¼x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,500 f. o. b. Kokomo. Full equipment.

Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs 4¼x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.

POWER

At this stage of automobile development, the power transmission by chain is most popular.
Properly cut sprockets, and the best and strongest chain in the world.

THE BRAMPTON



Which is made of self-hardening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

The matter of repairs and replacements is simple.

YOUR CHOICE.

The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars. **Special chains to fit Indian motorcycle.**

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Motor Car Tires

Perfect in Material and Workmanship,

Handsome in Appearance.

Made with OVAL RAISED TREAD, giving added wearing surface and proper road contact.

Provided with BREAKER STRIPS to resist severe shocks.

Fitted with a tough, pliable cushion of rubber next the fabric, relieving it from the force of heavy blows.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

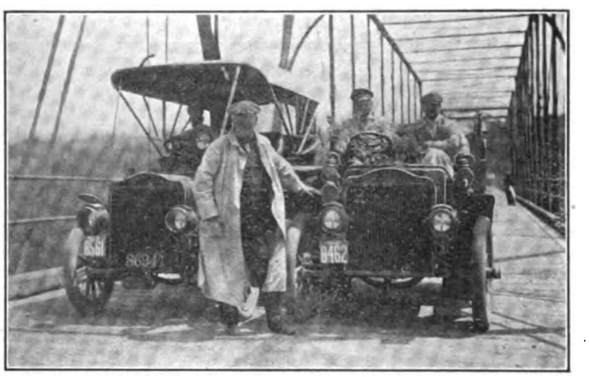
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The Incomparable
WHITE
The Car for Service.



THE CHOICE OF THE WELL-INFORMED.

No man is better fitted to judge of the relative merits of the various makes of cars and to judge intelligently between them than Thomas A. Edison, the foremost mechanical genius of the age.

Prospective purchasers of automobiles who have trouble in deciding "Which is the best make of car," should note that Mr. Edison uses White steamers exclusively in his touring.

The above illustration shows Mr. Edison and his two Whites during his recent six-weeks' tour through the southern States.

Write for literature describing six years of White success.

WHITE SEWING MACHINE COMPANY
CLEVELAND, OHIO

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Columbia

AUTOMOBILES

Are completely illustrated and described in THREE CATALOGUES devoted respectively to GASOLINE CARS (18 H. P., 24-28 H. P., 40-45 H.P.,) ELECTRIC CARRIAGES (Runabouts, Victoria-Phaetons Surreys, Broughams, Hansoms, Landaulets, Busses) and ELECTRIC COMMERCIAL VEHICLES (delivery wagons and trucks, ranging in load capacity from 1,000 to 10,000 pounds.)

Mailed on request; and also special illustrated pamphlets, "Fashioning A Crankshaft," "Columbia Chrome-nickel Steel," "Transmission, Etc.," "Consistent Differences."

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Side-Wire Solid Tires

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Economy Durability Satisfaction

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Ready Made Gas for Automobiles

"Prest-O-Lite"

LIGHT WITHOUT WORK, WAITING OR DANGER

If you try to make gas for your auto lights in the old way, with a generator, you must have patience and wait—you must make up your mind to fix carbide, get water, blow out pipes, clean burners and do a lot of other disagreeable things.

There is one way to escape the difficulties, however—and only one. All the labor, uncertainty and danger of the old-fashioned way can be avoided by getting gas ready for use—generated in advance. That's exactly what Prest-O-Lite gas is—pre-generated acetylene gas, of very high illuminating power, condensed for convenient carrying, and compressed to give even pressure for steady, non-flickering, always reliable, always brilliant light.

There is no labor for the user. You simply turn the gas on and light it when you want it, just as you do the city gas in your home.

When a tank is empty, it can be replaced with a full one for the cost of recharging. Send for our book "Ready-Made Gas for Auto Lights."

We will send you a copy, postpaid, by return mail, with our compliments, for your name and address in a letter or on a post card. Write to-day, to

The Prest-o-Lite Co.,

Department 173, Indianapolis, Ind.



Over 400 Supply Stations—one in every important city in the United States. Ask for a list of them.

IF you want absolute immunity from

PUNCTURES
BLOW-OUTS
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SKIDDING

and release from tire anxiety of every kind

USE

HEALY LEATHER TIRES

Profiting by the failures and successes of our competitors, we have made the Healy Leather Tire unequaled, and have produced a tire of which it can positively be said that it is made with "The Best of Everything in the Best Place."

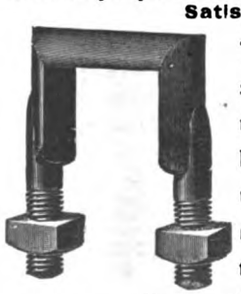
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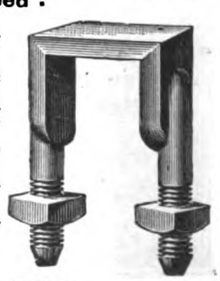
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Have you secured our prices?

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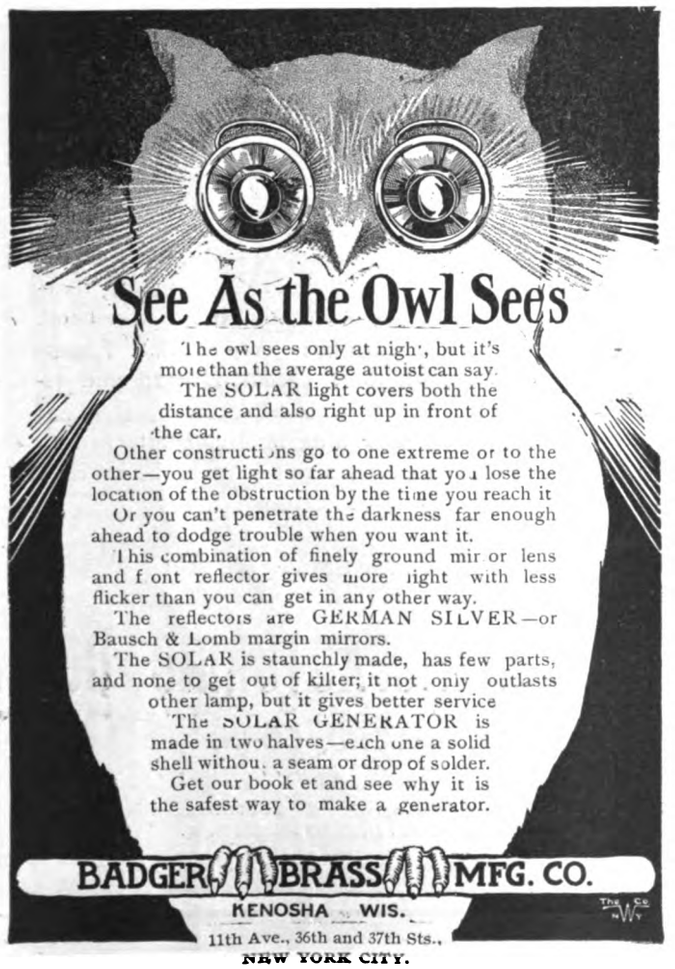
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PREST-O-LITE COMPANY, Indianapolis, Ind.
Licensed by The Commercial Acetylene Company



See As the Owl Sees

The owl sees only at night, but it's more than the average autoist can say.

The SOLAR light covers both the distance and also right up in front of the car.

Other constructions go to one extreme or to the other—you get light so far ahead that you lose the location of the obstruction by the time you reach it.

Or you can't penetrate the darkness far enough ahead to dodge trouble when you want it.

This combination of finely ground mirror lens and front reflector gives more light with less flicker than you can get in any other way.

The reflectors are GERMAN SILVER—or Bausch & Lomb margin mirrors.

The SOLAR is staunchly made, has few parts, and none to get out of kilter; it not only outlasts other lamp, but it gives better service.

The SOLAR GENERATOR is made in two halves—each one a solid shell without a seam or drop of solder.

Get our booklet and see why it is the safest way to make a generator.

BADGER BRASS MFG. CO.
KENOSHA WIS.
11th Ave., 36th and 37th Sts.,
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flows out of the rocks at the various medicinal springs at

FRENCH LICK-WEST BADEN SPRINGS

in the highlands of Southern Indiana. This is the season of the year when a brief visit there will restore the normal balance of your system—renew appetite—put you in condition.

Outdoor and Indoor Recreations in Plenty—Golf Playing Now
Superb Hotel Accommodations.

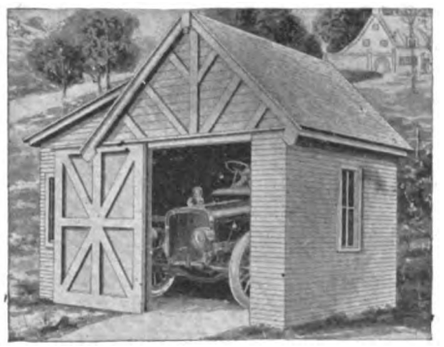
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It's So Very Neat

The Premier Portable Garages

are quite unique. They are so simple—yet artistic, practical—yet durable. They save expense of garage rent and are one-third the cost of a permanent structure. Being built in sections they are very easy to move and re-erect whenever you like.

GET BOOKLET No. M37.

A handy man can erect it in TWO hours.

CHAS. H. MANLEY,

Premier Mfg. Works, ST. JOHNS, MICH.

Witherbee



Recognized as the most satisfactory means of ignition.

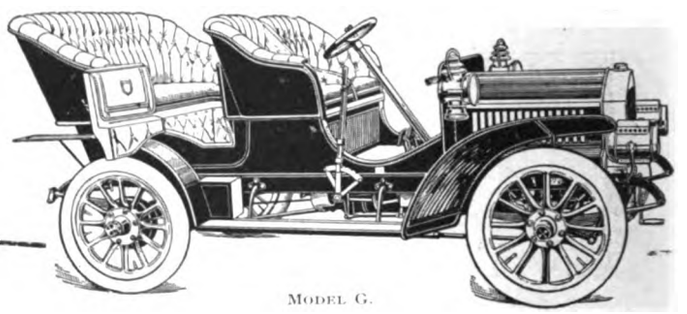
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Every battery guaranteed to give satisfaction or purchase money refunded.

Write for descriptive pamphlet.

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MODEL G.

Pope-Hartford

MODEL G.

18 H.P. Price $1600

Not everyone interested in motoring desires to possess a high-powered four-cylinder car. There is a distinct field and good demand for thoroughly reliable two-cylinder gasoline machines.

The simpler engine with the light, wieldy construction appeals to the man who likes to drive and care for his own machine and make it a daily companion and a constant source of pleasure for himself and family.

Body: Divided front seat and double side entrance tonneau. **Seating Capacity:** Five. **Motor:** Two-cylinder horizontal opposed, located under the hood. **Horse-power:** 18. **Ignition:** Jump spark. **Transmission:** Sliding gear, three speeds forward and reverse. **Drive:** Shaft with bevel gears. **Brakes:** Double acting brakes expanding in drums attached to each rear wheel hub; double acting band brake attached to rear of transmission shaft.

Write for Catalogue.

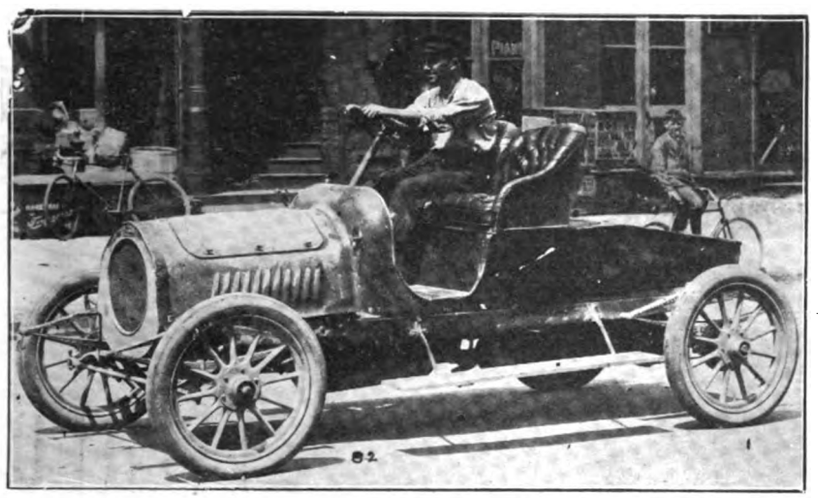
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PREMIER

"The Quality Car."

In order to determine the practical road reliability of motor cars in its maintenance service, one of the companies operating many thousands of miles of aerial wire lines, undertook some trial tests with the Premier car.

One run covered a distance of 124 miles, average road, no stop, from Indianapolis to Dayton, Ohio, by a somewhat circuitous route. This trip was made by a car then in process of being "tested out" before completion. The trip was made on a few minutes notice, and two passengers were carried. To the same point by Pennsylvania Railroad is 113 miles, and the time of the Pennsylvania Limited between Indianapolis and Dayton is three hours and twenty minutes. The Premier car made the run in three hours and forty-three minutes, the results being as follows:

Sustained average speed of Railroad train 33.89 miles per hour
" " " Motor car 33.51 " " "

No special car was selected for this service, and such results are expected of any car leaving our factory. They stand the hard knocks of the road, through the dust and sand, uphill and down, splendidly constructed, comfortable riding, fast, strong, elegant in appearance, more for the money than is found in any other car. Four-cylinder, vertical motor, shaft drive, selective type sliding gear transmission, I beam front axle, all that goes to make an ideal motor car. *Send for Catalogue "S" or consult our nearest agent.*

PREMIER MOTOR MFG. CO., - Indianapolis, Ind., U. S. A.

Members American Motor Car Manufacturers' Association.



SINGLE
FOR LIGHT WORK

HARTFORD

SINGLE and TWIN

SOLID TIRES



TWIN
FOR HEAVY WORK

Note Method of Attachment.

The successful commercial vehicle tire must have its retaining device vulcanized inside the tire, otherwise the attachments rust. The HARTFORD is secure and rust-proof.

THE HARTFORD RUBBER WORKS CO., Hartford, Conn.

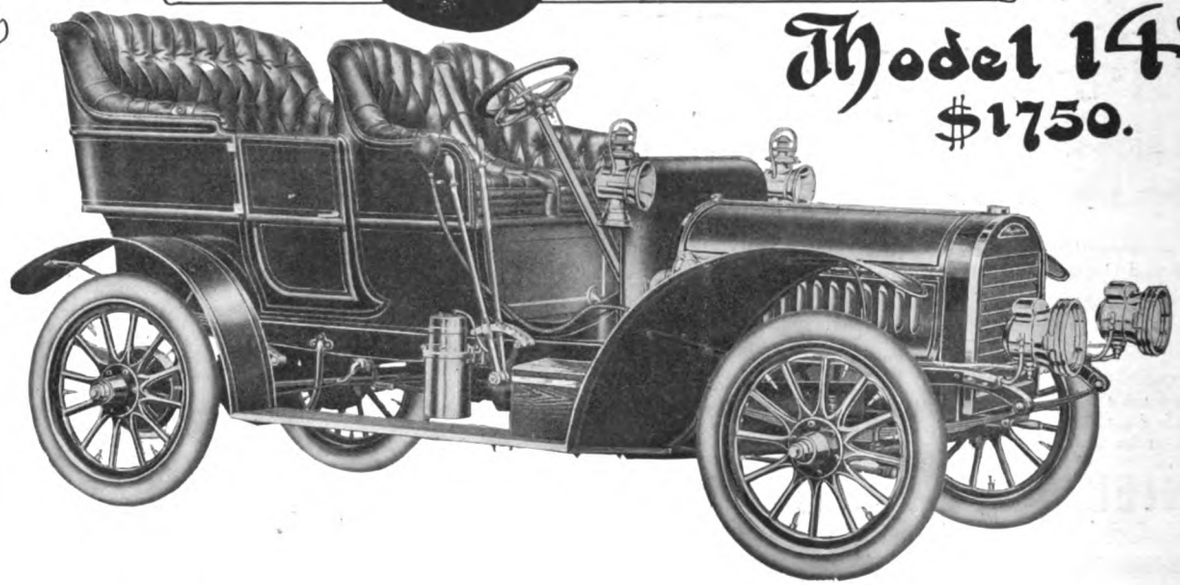
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Rambler

Model 14
$1750.



A medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, July 19, 1906. No. 7

FOREIGN EXPERTS TO APPEAR

Selden Interests Engage Two of Them—Will Give Testimony in Patent Suits.

It came out this week that Hugo C. Gibson, the British motor expert who came to this country some three months since, is not here wholly to exploit the gas engine power indicator of which he is the inventor. It is now known that he will appear as an expert in the suits involving the Selden patent, having been retained for the purpose by the Association of Licensed Automobile Manufacturers.

Even more surprising than Mr. Gibson's appearance in the famous litigation, is the arrival on the scene of Dugald Clerk, also of London, and one of the best known authorities on gas engines in the world. He also has been retained by the A. L. A. M. to give expert testimony, his engagement in that capacity having, it appears, been negotiated in January, 1904.

Mr. Clerk arrived in Hartford on Monday last, where he was met by Mr. Gibson and George B. Selden, the patentee, M. J. Budlong, president of the Electric Vehicle Co., and H. F. Cuntz, the patent expert of the A. L. A. M. They were in consultation for a good part of the night, spending a great deal of the time at the Electric Vehicle Company's factory, where Mr. Clerk performed a number of tests bearing directly on the litigation.

It is expected that he will take the stand in behalf of the Selden interests during the month of August, and that his testimony will consume some three or four weeks.

Mr. Clerk is a leading spirit in the Society of Civil Engineers of London, and has been interested in gas engines since 1882. He is the author of a number of books on the subject, and has been a prolific contributor to the press.

Tanks Restored to Chicago Garages.

Chicago's garages are again able to supply gasolene, their tanks which were ripped out in the recent raid having been restored to the victims. What should have been done at the outset was finally accomplished a few days ago—the passage of an ordinance permitting the use of tanks buried in alleyways or under the sidewalk. The measure was introduced by Alderman Dever, but was not passed until it had been considerably amended. As finally enacted, it gives Mayor Dunne power to order any tank emptied, if, in his judgment, its use is dangerous. It also restricts the maximum quantity permitted to be stored at any time to 100 gallons.

Engineers to Meet in Detroit.

For a change, the next meeting of the Mechanical Branch of the Association of Licensed Automobile Manufacturers, which falls on July 24 and 25, will be held in Detroit instead of in New York, as usual.

On the first day the engineers wil be the guests of Charles B. King, chief engineer of the Northern Motor Car Co., aboard his magnificent sea-going yacht, the Winyah, which was formerly owned by Andrew Carnegie. They will cruise on St. Clair Lake and the St. Clair river and dine in the evening at the Old Club. The second day will be devoted to consultations and visits to the various factories in and about Detroit.

Henry Ford Becomes President.

Henry Ford is now president of the Ford Motor Co., Detroit, Mich. He was elected to that office on Saturday last to fill the vacancy caused by the death of John S. Gray, who expired in California last week. At the same meeting, John F. Dodge was elected vice-president, and J. E. Couzens secretary-treasurer. Mr. Couzens succeeds as treasurer Alex. Y. Malcolmson, now the active man in the Aerocar Company, whose Ford Holdings have been acquired by the present stockholders of the Ford Motor Co.

Baker Out of Baker Company.

Walter C. Baker, so long identified with the Baker Motor Vehicle Company, Cleveland, O., will hereafter devote more of his time and attention to the affairs of the American Ball Bearing Company in that city, of which he long has been president. This is to say that Mr. Baker and the Baker interests have parted company.

MORE ROOM FOR DIAMONDS

Unusual Circumstances Attached to Latest Addition—Miniature Plant also Building.

To those who are familiar with the volume of business transacted by the Diamond Rubber Co., the news that another enormous addition is to be made to their immense plant at Akron, O., scarcely will prove in the nature of a surprise. As the site for the addition already has been acquired and cleared, it is the use that will be made of it that will cause eves to blink.

This addition will be a single story brick building, 700x300 feet, with sawtooth roof construction. To make room for it, seven dwelling houses were torn down, and a big lumber company moved bodily off the remainder of the land.

The surprising part of the whole performance is that this new factory, despite its size and solidity, is intended for occupancy for one year only. At the end of that time, it will be torn down and a solid six-story building be erected in its place. The foundations for this permanent structure, on which the temporary building will stand, are being prepared and will, therefore, be ready to receive the larger factory when the erection of it is commenced.

Nor is this the only constructive work in which the Diamond Company is engaged, for at this moment it is occupied with the building of another complete rubber plant, a miniature one, however. It will adjoin the company's laboratory and the details will be carried out exactly as they are carried out in the productive factory itself. The diminutive plant will include miniature mills, rolls, vulcanizers, and all other necessary tire making equipment, and will be employed for experimental work so that exact results may be determined before practical production is entered into.

The Hartford Suspension Co. has made another notable capture. It has been decided to equip all 1907 Stevens-Duryea cars with shock-absorbers, the order having been placed for Truffault-Hartfords.

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Ford Talks of Weights.

"Despite the recent revelations of the 'muck-rakers,' we Americans are still an optimistic people," says Henry Ford, in a recent interview. "Our credulity amounts almost to gullibility. Take the matter of weights of automobiles. How many owners or prospective buyers ever think of verifying the statements of salesmen on this important point? Not one in a hundred.

"But this matter of weight in a car is a most important one. Tire consumption is the greatest item in car maintenance—and the life of tires is directly dependent on the weight of the car. To make a powerful car of sufficient strength to withstand American roads and yet light in proportion to its power, only the highest grade of materials can be used. So that lightness is, in a way, a guarantee of quality. Then, too, the actual efficiency of a car depends on its weight. Given the actual horsepower, the gear ratio and the actual weight of a car and any experienced motorist can pretty accurately compute its actual efficiency in speed; hill-climbing or any other class of work. Under-estimate the weight and it is easy to over-estimate its performance.

"Perhaps in no other respect is the average car so misrepresented as in this item of weight. Fourteen hundred pound cars masquerade in the 1,000 pound class; 2,800 to 3,000 pound cars are said by their makers to weigh 2,400 and many a 4,000 pound car is rated at 3,000 pounds and less.

"It is a simple expedient to weigh the car and see—but for some inexplicable reason few buyers or even agents do so. In the agent's case we understand it—he prefers not to know for he can then recite catalogue figures more glibly and without intentionally lying. The six-cylinder Ford car, rated at 40 horsepower and advertised as weighing 2,500 pounds, weighs just one and one-quarter tons on the scale. That is with radiator and gasolene tanks full, but without the cape top. The top weighs about 75 pounds complete with side curtains.

"Next time a salesman gives you the weight of his car, just ask him to drive around to the nearest scale—at the market or a brewery or a coal office, and 'show you,'" advises Ford. "You will be surprised to learn how much he is giving you for your money."

Budlong on South America.

President Budlong, of the Electric Vehicle Company, says that a sign of the times may be detected in the numerous requests for selling rights for Columbia cars which have recently come from South American countries. He thinks that South America will ultimately become one of the most important markets for American cars. A great many Columbia electrics are already in use in the principal cities of Brazil and the Argentine. Many inquiries have also been received this season from New Zealand and Australia, but up to date no actual sales have been reported.

ACME IN RECEIVER'S HANDS.

The Acme Motor Car Co., Reading Pa., went into the hands of a receiver late last week. While it was known that the company was rather "slow pay" such a sudden crisis of affairs was scarcely anticipated.

The Week's Incorporations.

New York City, N. Y.—Lenox Automobile Company, under New York laws, capital $50,000. Directors—B. F. Steins, G. A. Knobloch, New York; N. B. Vause, Brooklyn.

New York City, N. Y.—Railway Auto Car Company of New York, under New York laws, capital, $10,000. Directors—H. Rieman Duval, Franklin Q. Grown, Charles Ducas, New York.

New York City, N. Y.—Petroleum Automobile Engine Co., under New York laws, with $250,000 capital. Incorporators—C. B. Howard, Millbrook; J. D. Baker, Yonkers, and A. W. Britton, East Orange, N. J.

Schenectady, N. Y.—Schenectady Automobile Exchange and Supply Co., under New York laws, with a capital of $1,000. Incorporators—G. E. Smith and N. L. Smith, Waterford, and J. Nicholson, Schenectady.

South Berwick, Me.—Ideal Steam Auto Co., under Maine laws, capital $250,000. President, treasurer and clerk, F. A. Hobbs, South Berwick.

Waterville, Me.—Prentiss Motor Car and Supply Co., Waterville, under Maine laws, with a capital of $50,000. President, R. W. Gilman, and treasurer, L. G. Whipple, Waterville.

Indianapolis, Ind.—Premier Motor Mfg. Co. Increase of capital stock from $100,000 to $200,000. New issue of $100,000 to be preferred stock.

Brooklyn, N. Y.—Eagle Garage and Machine Company, Brooklyn, under New York laws, capital $20,000. Directors—W. Scudder, E. B. Barber, J. C. Scudder, Bath Beach.

New York, N. Y.—The Lewis Power Co., under New York laws, capital $40,000; to build automobiles and tram cars. Directors—Henry Oppenheimer, Frederick Kopper, Jr., and E. A. Weed, New York.

New York, N. Y.—J. & E. Homan Co., under New York laws, capital $10,000; to manufacture gasolene engines. Directors—J. A. Homan, E. Homan, Jersey City; F. D. Homan, New York.

Hartford Stockholders Choose Directors.

At the annual meeting of the stockholders of the Hartford Rubber Works Company, held on Tuesday last in Hartford, the following board of directors was elected: C. H. Dale, New York; C. A. Hunter, New York; A. L. Kelly, Providence; John J. Watson, Jr., New York; V. B. Lang, Detroit, Mich.; Thomas Midgley, Hartford; J. D. Anderson, Hartford. The officers will be elected at a directors' meeting that will be held to-day.

Elmore to Double its Capacity.

The Elmore Manufacturing Company will shortly more than double its present capacity. Three new buildings, each two stories high, which are being erected, will be added to the plant at Clyde, Ohio. These buildings are, respectively, 108x40 feet, 100x40 feet and 70x40 feet, thus adding more than twenty-two thousand square feet of floor space to the present extensive plant. One of the new buildings will be of concrete, and the other two of modern wood and iron construction.

Hawley Joins the Brandenburgs.

P. E. Hawley, for the past year manager of the Detroit Branch of the Continental Caoutchouc Company, has resigned his position with that company and will hereafter be identified with the Brandenburg Company of Chicago, New York and Detroit, manufacturers' sales agents. Mr. Hawley, however, still retains his position as president of the Automobile Equipment Company in Detroit.

Adams Again Takes up the Atlas.

Fred H. Adams, 541 Tremont street, Boston, Mass., has been appointed agent for the Atlas gasolene trucks and commercial cars manufactured by the Knox Motor Truck Company, Springfield, Mass. The appointment is the more interesting because but a few months since Adams relinquished the Atlas agency.

Benjamin a Retailer, too.

The Buffalo (N. Y.) agency for the Aerocar has been placed with the well known C. A. Benjamin, of the Buffalo Automobile Station, 240 West Utica street, which is the first news that he has taken to the retail end of the game. It is being handled in conjunction with his other work as sales manager of the Babcock Electric Company.

New Owners Elect Officers.

At a meeting of the new owners of the Southern Automobile Co., Nashville, Tenn., the following officers and directors were elected for the year: President and treasurer, Duncan F. Kenner; vice-president and general manager, Charles C. Coddington; auditor, Charles C. Gilbert, and directors, W. J. Cummins and Joseph E. Yowell.

Schott Leaves the Rose.

Walter A. Schott, for some time past connected with the Rose Manufacturing Company of Philadelphia, has left their employ and is now pushing the sale of Prest-O-Lite gas tanks and Prest-O-Tire tanks in eastern territory.

Monarch Acquires New Plant.

The recently reorganized Monarch Motor Car Co. has just acquired a manufacturing plant at Leyden, Ill., at a cost of $30,000. The factory was formerly occupied by the Siegel-Cooper Co., for the making of various food products.

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FIRST OF THE 1907 MODELS

Aerocar Early on the Scene—Mechanism, Body and Finish Contain Novelty.

One of the earliest "birds" to be dispatched into the world in search of the early worm of 1907, is the Aerocar, Model C, which is shown by the accompanying illustrations, in one of which the Aerocar designer, L. M. Dietrich, is portrayed. In it, the Aerocar Company, Detroit, Mich., are staking their hopes, not simply upon a new mark, but also upon a new car throughout. Its motor is air-cooled, of course, is rated at twenty horsepower, and the clutch is especially designed with an eye to the maximum of running on the highest gear. In appearance, it is decidedly striking, the contour of the splash boards being suggestive of the continental type of racing car, the graceful curves employed at their junction with the body, however, softening the effect, and besides lending an air of grace to the machine, serving a useful purpose in soothing the undercurrent of air and thus allaying the dust.

Aside from the commendable features in which it represents a betterment of many of the types already on the market, particularly in respect to its characteristics of silent and smooth running, the new Aerocar possesses one or two exclusive points of distinction, which are really surprising. The relief of the strains upon the steering gear by the peculiar shape of the mud guards, and the novel method of finishing the body, constitute merits which are sufficiently striking in themselves to warrant for the makers all that publicity which the good advertiser so much desires. Its especial features are best pointed out by the description furnished by Engineer Dieterich, its designer. Referring to the method of control, he says:

"Being started on the high gear, it is driven with a permanent high advance spark on the throttle only, and will give range from 8 to 50 to 60 miles, according to road conditions, by just touching the throttle lever. Quick fluctuations in the speed of the car can be made by simply operating the clutch pedal, which being thrown in the first notch will release the clutch and retard the spark, thereby preventing the engine from racing and at the same time maintaining a full charge of gas in the cylinders, making it impossible to be stalled by changing gears on a hill. Moving this pedal further forward sets the hub brake gradually. Tipping the foot forward releases the pedal, and the gradual engaging clutch of special design, makes the car pick up fast but soft. The right hand pedal operates the transmission brake only, and is used as an emergency brake, in combination with the left hand pedal. The gear shifting lever is a side lever on the inside of the high side doors which effectually protect the driver from draught or dust.

"The mud guards are of special design, made of a solid piece of charcoal iron and so shaped that it is not only impossible that any flying water or mud can strike the body or its occupants but also lightens the weight on the front axle when going at high speed, as they are designed on an aeroplane principle; thereby the steering is made very easy and certain.

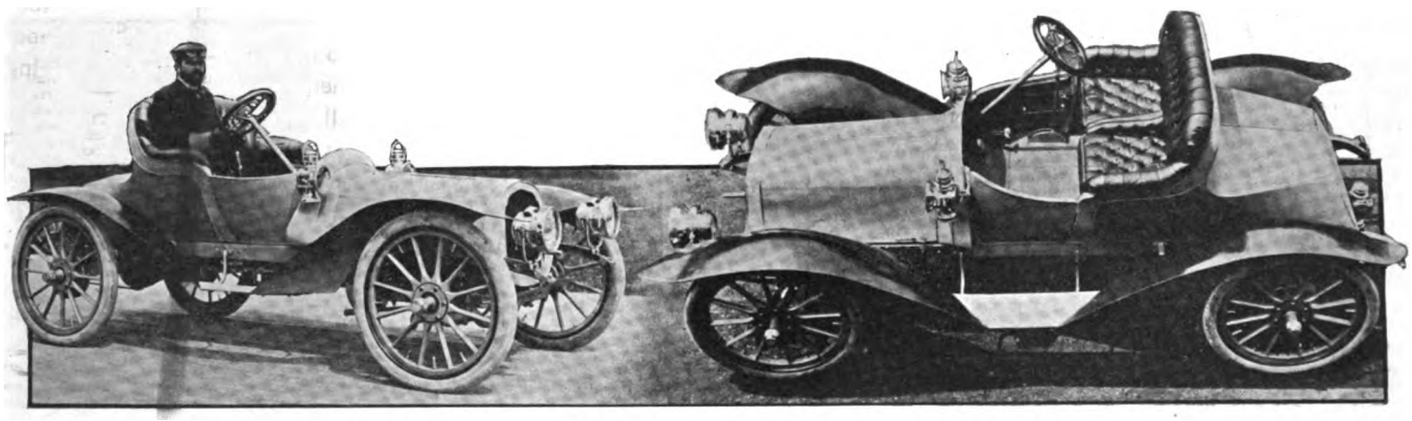
"The commutator used on this car is of ideal construction, as it permits of the absence of any oil from the interior of same, thereby eliminating a permanent insulator and connected in the best known form for interrupting and making electrical contract, that is, the knife switch. The knife being of hardened and ground steel and the brushes of hard phosphorous bronze, there is practically no limit to the wearing qualities of this commutator. At the same time, the construction of this commutator makes the missing at high speed an impossibility, which is a very hard important point for a high speed engine as embodied in this car.

"The carburetter is without any springs and positive in its adjustment, of the modern three jet type. How perfect the mixture is supplied by this carburetter at different car speeds is best demonstrated by rapidly opening and closing the throttle and if properly adjusted, this carburetter will never cause any missing or back firing.

"The shape of body and hood combined with the afore mentioned mud guards offers a minimum of wind resistance so far achieved in stock cars. The peculiar shape of the rear end of the body also produces air-currents which hold down the dust behind the car.

"The finish of the car is of such an oily nature that muddy water will not adhere to same, but roll right off, and the only operation necessary to keep the car always looking like new, is to wipe it over with an oily cloth after it has been cleaned. The surfaces of this car are more impervious to any weather conditions than any varnish finish, and this car will always look new without the necessity of employing an experienced coach washer.

"The capacity of twenty-four and a half gallons to the tank is furthermore of importance for a touring runabout and so far unprecedented. The gasolene tank is provided with two gasolene cocks, one with a regular handle and the other with a square end to be opened with a wrench, when the regular supply of gasolene has been exhausted. The opening of the second cock will insure the driver of enough gasolene for a fifty-mile run and can therefore be justly called a low level gasolene alarm."



THE 1907 AEROCAR, MODEL C.

Beers to Travel for Cadillac.

W. C. Beers has engaged as general traveling representative of the Cadillac Motor Car Co. There is small doubt but that he will prove a distinct acquisition. It once was said of Beers that he could make sandpaper appear as velvet.

Utah Straightens its Affairs.

The Utah Automobile Co., Salt Lake City, which was threatened with bankruptcy proceedings, has settled its differences with its creditors and will continue business without interruption. The action filed against it will be discontinued.

"The A. B. C. of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. ***

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AUTOMOBILISTS, Honk! Honk!

ARE YOU READERS OF

"The Pneus?"

The usefulness or uselessness of a vehicle is so largely dependent upon the worth or worthlessness of its tires that it may be fairly said that the success of one is measured by the other. What a few people know about tires would fill a large volume, but what most people don't know is liable to fill large cemeteries.

"The Pneus" represents an intent to disseminate a wider knowledge regarding the economic usage of them, and made its introductory bow to the public some months ago in all modest confidence—the modesty pertaining to the Editor personally, and the confidence concerning the various goods to which we call attention.

Have that hollow spot in your automobile joys filled with that happy publication,

"THE PNEUS"

The paper that has juice in it,
As good as the juice in the pies that
"Mother used to make."

The funny-bone method used—thousands cured.
Marvelous results obtained with cases of Blue Fits.
(Fits of the Blues.)

The sympathetic and airy attitude of the specialist-in-charge, is worth the price of an automobile.

If only the owner of a rubber-tired Baby Carriage, it will lighten your burden of cares.

DEAR PNEUSY PUBLISHER: Buffalo, N. Y., June 27th, '06.
I wish to give an unsolicited testimonial to your tire journal. "The Pneus" has made good and every number sets a new high-water mark for frisky news about tires and allied subjects. I have been greatly amused by your fine variety of reading matter. Every copy sets people "rubbering" for the latest "rube" on the "bubble" business. Many thanks for the numbers sent me. Yours very truly,
GEORGE A. SCHAFFLER.

PUBLISHED MONTHLY JULY NUMBER JUST OUT

Let us send you Six Months' Subscription Absolutely Free.

Send your Name and Address to BURTON PARKER, Publisher,
Chicopee Falls, Mass.

Is it any wonder that

SINGLE CYLINDER CADILLACS

Sell, Stay Sold, Sell Others?

HERE'S ONE OF THE "WHYS"

Rockville, Ind., June 28th, 1906.

CADILLAC MOTOR CAR CO., Detroit, Mich.

Dear Sirs:—Please give me price on chain for a 1903 Runabout. Should I buy a chain for this machine it will be the first actual expense for material or repair except one tire since I purchased it in 1903. This old Machine has sold two Cadillac Runabouts this season, 1906, and I actually believe the compression is as good as it was the day I bought it.

Yours truly, [Signed] BEN HUNNICUTT.

With Cadillac dealers it is not a case of "plug" to effect every individual sale. It may occasionally require a little work to correct the wrong impressions of some misguided prospective purchaser, but the bulk of the Cadillac sales are made to persons who know what they want, who know what they ought to have and who INSIST ON HAVING CADILLACS AND CAN'T BE TALKED OUT OF IT.

There will not be many changes in territory for 1907, but there may be a few, where dealers don't know how to appreciate a good thing when they have it.

CADILLAC MOTOR CAR COMPANY, - - Detroit, Mich.

Members Association of Licensed Automobile Manufacturers.

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THE MOTOR WORLD

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☞Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

☞Those who are interested in motor vehicles will find the facilities and information of our office always at their command.

To Facilitate Matters Our Patrons Should Address us at P. O. Box 649.

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NEW YORK, JULY 19, 1906

Piling on the Weight.

Faster by far than the tire maker has been able to keep pace with it has the demand of the motorist for luxury tended to advance the weight of the car. More was done toward relieving the tension existing between tire makers and users by the adoption of the standard table of sizes and weights that went into effect last year than by any other one thing that can be mentioned. So far as what is generally known as the touring car is concerned its beneficial effect has not diminished, but in the tendency to further burden the car with a heavy body is to be found an element that is rapidly bringing about a state of affairs identical with that which existed before the adoption of the table in question, where the enclosed type of car is concerned.

In other words, it is becoming more and more common for the carriage maker to overburden the cars that are turned over to him for completion. Where the chassis is sold separately it is ordinarily equipped with tires of a size designed to carry a touring body, and this is likewise the case where the heavy touring type of car complete is purchased. It is in the addition of a heavy limousine body to such a car after its acquirement from the maker that the greatest danger lies. Danger, not alone to the reputation of the tire maker, but to the users of the vehicle as well. Despite the great advances made by the carriage builder in other directions, no improvement appears to have been brought about in the matter of weight. Its designer's only object is to please the buyer and this all-important item is, more often than not, totally disregarded. In turn, the buyer piles on trunks, satchels and other burdens of which no reckoning is taken.

Consequently, the tires have to bear half a ton or more in excess of the load for which they were rated, and even the marvellous degree of skill evidenced by their creator in so manipulating such perishable materials as rubber and cotton, is not proof against this and they must suffer. It is not alone the greatly increased weight of the enclosed type of body, but the greatly higher center of gravity it gives the car. This sets up considerable lateral movement of the entire car when travelling at speed which must be resisted entirely by the tires. There can be but one result and that this may be far from pleasant is strikingly illustrated by the cabled report of an accident to a party of tourists near Paris, last Monday. An American car had been fitted with a large limousine body at the French capital and the tour resumed from there without further change, despite the chauffeur's recommendation that the car was then entirely too heavy for its tires. Before Paris had been left 50 miles behind, two of the tires burst simultaneously, the car overturned and was completely wrecked

The Watch as an Example.

When it comes to pass that the automobile maker has sufficient confidence in himself and his product so that he can hide the entire power plant of his machine under a substantial bonnet locked with a stout lock, and send it out to the user thus, allowing him no further privileges of manipulation than are confined to the operations of refilling the tanks and driving, then, and then only, will the automobile be ready for the grand seal of approval for its thoroughly reliable action. Take the common pocket time-piece, for example, the illustration upon which everyone from the pulpit clear around the world to the stump, draws upon in proof of the marvel of man's ingenuity. The reliability of the average watch is due to two things, mainly, first, to the fact that it is the climax of a long process of development, and second, that the average user, knowing full well that he cannot do it any good by monkeying with it, lets it alone until it is ready to go to the hands of the expert.

Just as a cupboard filled to the door with medicinal nostrums proves simply irresistable to the invalid, no matter what her particular affliction may be, and just as the small boy always feels called upon to investigate the interior of everything mechanical, which chance puts in his path, so the motorist, observing a lot of parts for the adjustment of which the maker has provided means, must needs do a little adjusting on his own account, regardless of the fact that frequently enough, his efforts are wholly irrelevant to the actual demands of the case. And so it will be as long as adjustments are possible to the thumb-handed novice. Ultimately, of course, it will come about that but for the alterations necessary to the ordinary running of the car, no part of the mechanism will require adjustment outside of the shop, where supposedly, the work will be done by really competent hands. When that time shall have arrived, the bonnet might as well be sealed as left open to anyone with dexterity enough to turn a catch.

Even so, it hardly would be advisable to permanently close the power plant of the machine. For to hark back once more, anyone can open a watch case with ease. The average person does not, because of his trust in the maker. Hence, when the automobile maker has sufficient trust in himself to eliminate adjustments from the make-up of the car; and when the user has sufficient trust in the maker so that the idea of "improving" will be entirely abandoned; when, in other words, it comes to matter not at all whether the bonnet and transmission case are locked or open to all the world, then will the day of the car of universal satisfaction have arrived.

The Way They do it in Germany.

Instead of passing a law to create an "automobile accident bureau," as was proposed by the New York legislature at its last term, the Germans have gone the other way about it and have created the bureau in

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order that they may formulate a law. Since April last, a division of the regular governmental bureau of statistics of the Empire has been busy recording and tabulating every accident even remotely connected with the automobile. The place, the cause, the local law, the action of the local authorities, the nature of the accident, and every other detail of interest has been made the subject of inquiry. Day after day clerks are accumulating this material and tabulating it in a form for reference.

When this process has been continued for a sufficient length of time, the result will be employed as the basis upon which to frame a law that shall be uniformly enforced throughout the Empire and which shall prohibit every practice which facts and figures extending over a long period, show to be conducive to accident. The penalties prescribed for the infraction of each of such provisions will be of a nature that will insure compliance with the law. In this way it is hoped to further the interests of all concerned—to protect the life of the automobilist himself, as well as that of the pedestrian, without sacrificing in any way the material interests involved in the manufacture and sale of automobiles.

This is an order of procedure in law making that might be followed in this country to great advantage. Here it is customary to pass the law first, and that does not occur until every conflicting interest has been given an opportunity to cut out of it every feature intended for the general and public good. After that, if it be not declared unconstitutional the first time it is passed upon, experience is left to point out its defects. If there happen to be grave objections to it, it depends entirely upon the temper of the local authorities whether it is allowed to become a dead letter or is enforced until the next session of the legislature repeals it. More often than not there are glaring defects in it which anyone familiar with the situation might have pointed out at a glance, but which are overlooked by the theorists. It is true, commissions are often appointed here to collect the preliminary information necessary, but as such commissions are neither permanent nor experienced bodies the result of their labors is not always of value, nor is it always accepted by the legislature, by any means. The German method is not entirely unknown in this country, but no one can doubt for a moment that any attempt ever has been made to apply it to the automobile. Legislation for the motor vehicle has been evolved in an even more haphazard and blind manner than usually characterizes it in other fields. The interest of everyone but the motorist himself is consulted, and he must "pay the freight and say nothing."

Recklessness on Curves.

Nothing is quite as exasperating to the occupant of the horse-drawn vehicle, particularly on the sinuous and usually well-shaded country road, than the startling rapidity with which automobile drivers are fond of hurtling round corners and in ninety-nine cases out of a hundred without the slightest warning. It is all very well to say that the car may be sent from one side of the road to the other by the touch of a finger and that the horse and carriage will be passed before its driver has awakened to a sufficient realization of his position. When it comes to a question of manoeuvering quickly in close quarters, the horse attached to a buggy is about as an unwieldy as an old sidewheel ferry boat. And what is far worse, once a movement in a certain direction has been undertaken it is almost impossible to reverse and there are no brakes. It takes longer to start a horse backing once he has understood the signal to go forward than it does to drive him 25 yards under ordinary circumstances, but a scared horse moves quickly and usually in the wrong direction.

Whatever of ill feeling happens to exist between the advocates of the different methods of transportation, and it would be idle to deny that there is such a thing, is fostered and fanned into openly displayed prejudice by this form of reckless defiance of the rights of the weaker users of the road more than by any one thing that the horse driver has against his rival behind the wheel. Even a total disregard of the legalized request to stop which the law says every driver must do when anyone behind a horse raises his palm, does not incense the agriculturist or his contemporaries with the reins a fraction as much as the sudden apparition of a large car round a bend in the road—and what country road is not all bend? The startling suddenness of the apparition frightens man and beast and frequently takes the chauffeur by surprise as well, so that narrow escapes are many. And the ignomy of it all, for long before the irate occupant of the buggy has had a chance to pacify his rearing and cavorting animal, the cloud of dust and gasolene fumes is already beginning to settle and the cause of it has disappeared around the next bend, probably to repeat the performance.

The utter recknessness with which the average driver will rush through a "blind" bend or over a cross road, without the faintest idea of what lies on the other side, is the most fruitful cause of disaster connected with the operation of the car. It is a practise that is deserving of censure at the hands of every user of the road, and none more than motorists themselves. If the ambitious country constabulary that sallies forth to enrich the town treasury would post itself at these curves and cross roads, instead of preparing ambushes on straight stretches where there is no possibility of danger, the ends of all concerned would be served to far better purpose.

When France "frames up" a race so that it practically cannot be defeated and public prints of the rest of the world devote reams of paper and gallons of ink to acclaiming France's "great victory," the shrewd Frenchmen must fairly chuckle in their sleeves at the success of their plans. As a restricted event, the Grand Prix did not deserve one-fourth of the space that was used in describing it.

New York's automobile registrations total more than 100 a week—a fact that gives the "see-lectmen" of a number of the country towns a sort of feeling that they will be able to meet expenses this year. If one of those rural geniuses ever took to figuring—if they do such things—he might be able to calculate that in the course of a few years it would not be necessary to tax anything else.

It is odd that the night parade has had such insignificant vogue, automobilists having worn threadbare almost every other form of entertainment and display. In the entire catalogue there is nothing more pleasingly spectacular than an illuminated parade, to which automobiles can be made to lend themselves with uncommon facility. Let us have a few of them.

Road racing is declining as a money making institution, or at least, so it is announced by the Paris Herald, which cites in proof the fact that Szisz's reward for winning the Grand Prix will be only about $15,500. Even so, there is as yet no scarcity of men who are willing to take a chance at it.

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53 Start in Scramble for Glidden Trophy

At Close of Sixth Day, 23 Retain Clean Scores and Eight have Withdrawn—How the Contest is being Conducted and the Growls and Incidents that have Added to the Interest.

Champlain, N. Y., July 17.—At the end of six days' actual travel, during which the distance of 487 miles has been covered, 23 of the 53 competitors for the Glidden trophy, and 4 of 5 contenders for the Deming stautette, which competitions are incidental to the American Automobile Association's annual tour, are on equal terms; this is to say, they have clean scores. Some of these 27 had blurs on their records, but protests and official digestion of the protests resulted in removing the specks. This, however, is another story. In all, 78 cars comprise the tour, made up of 58 contestants, 8 non-contestants and 11 service cars.

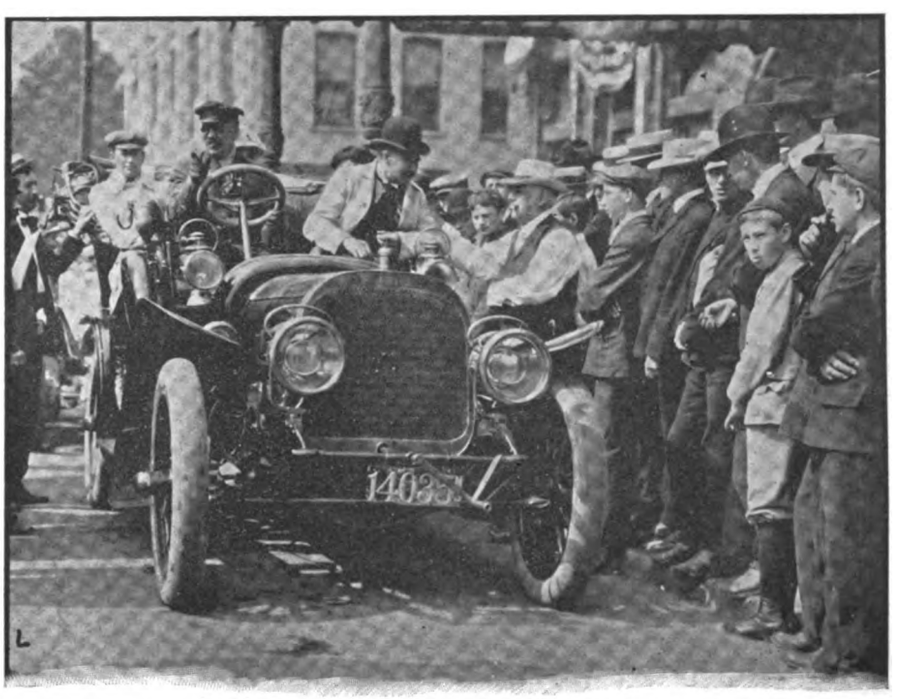
The tour and the contests, as all the world knows, was inaugurated at Buffalo at 7 o'clock on Thursday last, July 12, at which hour John Farson, president of the A. A. A., gave the word to Benjamin H. Knowles, of Brooklyn, driving a 35-40 horsepower Locomobile. Mr. Knowles, therefore, has whatever credit attaches to being the first to start. As a matter of strictest truth, Mr. Knowles had been preceded by the several so-called service cars, that is, by Walter C. White and R. H. Johnston in a White runabout, and H. A. Grant in a Maxwell runabout. Both of these cars were loaded with confetti and the trails they spread were of material assistance in marking the route for those who followed. The Knox baggage wagon, loaded high with trunks and valises, was also in advance, as was Tom Fetch in each day in carrying the checkers to their several stations in the morning and bringing them back at night.

But neither White, nor Grant, nor Fetch really blazed the way. That duty was reserved for "Jake" Schreyer—there is only one of him—in a big Maxwell, on the rear of which is emblazoned "Pathfinder." Schreyer preceded the tourists by some 48 hours. It was his duty to mark with arrows the route. When Jacob's selection for this duty was first made known, there were those who prophecied that he would do more than his duty; they prophecied aright. Schreyer is a man of nimble wit, whose pursuit of the nimble dollar is at all times interesting, that is, when it is possible to follow him. In this instance, those who came behind discovered that Jacob had been more interested in plastering the scenery with advertising matter than with the official arrows. With the confetti and the elaborate super-calendered booklet giving maps and mileage and road details, issued with the compliments of the White Sewing Machine Company, Schreyer's services might well have been dispensed with.

It is well, of course, that in all the printed matter pertaining to it, this function is styled a tour. The word "tour" suggests pleasure, but as a matter of cold blooded fact, there are precious few men participating in the run to whom it is not serious business. Any pleasure they extract from it is that much personal gain. Practically all of the contestants are trades people with an eye to the publicity and glory that may attach to the winning of the Glidden trophy, the donor of which, an American with a penchant for foreign cars, is on this occasion occupying a seat as a passenger in Augustus Post's White steamer.

The idea of touring which is possessed by most of those engaged in this Glidden contest is to rush from one checking point to another as swiftly as the Lord, the law or their engines will permit, and with only such halts as are required to retain their perfect scores. They are making of the tour practically a succession of 25-mile sprints. They have small eye for the glory

THE START FROM BUFFALO, JULY 12.



GEORGE N. PIERCE BIDDING GOD-SPEED TO A CONTESTANT.

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of valley or mountainside, and care not for restful pause. Nominally, of course, they are traveling at a scheduled rate of speed; practically, as stated, they travel as fast as possible. They are not supposed to pass given points, designated as checking stations, earlier or later than a given moment. What they really do is to rush to within from 10 to 100 yards of the checker and there stop. One of the passengers jumps from the car and runs to compare his watch with the checker's timepiece. The passenger returns and renders his report and the car waits until the proper moment before again getting under way, when the checkers go through the motions of duly recording its arrival at the scheduled moment, although as a matter of fact, it may have been within speaking distance anywhere from 5 to 50 minutes waiting for the time to expire. This schedule joke is repeated scores of times each day. If there are any repairs or adjustments to be made, they are, of course, attended to while the car waits, for all repairs and replenishments must be made on the road. Tardy competitors rush past at full speed.

The system of checking is about as follows: Each driver is permitted to start at any time he may select between the hours of 7 and 10 o'clock each morning. He is furnished with a card stamped with the elapsed time at which he is due at each checking point and at the night control. After he "checks out" in the morning, he must do his own figuring as to the clock time when he is due. The checkers who are stationed at intervals of from 25 to 30 miles, are carried to their places early each morning, and so do not know when the various cars are due. Each checker is provided with a card on which he simply notes the time at which the various cars pass him. At night, the checkers' cards are compared with the starters' records, and the score for the day is calculated on the basis of one point for each minute late and two points for each minute early. To be late at an intermediate checking station involves the same penalty as at a night control, when the cars are placed in charge of a watchman. The contestants for the Deming trophy are, on the other hand, free to use or do with their cars as they please, after once "checking in." The Gliddenites, forgetful of the rules, wanted the same privilege and, strange to say, there was some growling when it was refused.

During the first two days, some confusion was caused before the checking system ran smoothly, but certain improvements have been made in the methods of procedure, and now the drivers and officials are thoroughly familiar with the routine and things are on a satisfactory basis. Originally, checkers were supposed to give out no information whatever; now, however, they are permitted to answer questions and to call out times to any inquiring contestant.

(Continued on page 305)

STANDING AT CHAMPLAIN N. Y., JULY 17.—SIXTH DAY.

Perfect Scores—Glidden Contest.

N. H. Van Sicklen, Chicago, Ill., 40-45 h. p. Apperson; 5 persons.

Arthur Holden, Cleveland O., 40-45 h. p. Stearns; five persons.

L. J. Petre, Cleveland, O., 40-45 h. p. Stearns; five persons.

Ezra E. Kirk, Buffalo, N. Y., 50 h. p. Thomas; five persons.

George Soules, Toledo, O., 35-40 h. p. Pope-Toledo; four persons.

George M. Davis, Buffalo, N. Y., 50 h. p. Thomas; five persons.

Wilbur C. Walker, Hartford, Conn., 25 h. p. Pope-Hartford; four persons.

William E. Wright, Springfield, Mass., 35-40 h. p. Knox; five persons.

Charles F. Barrett, Hartford, Conn., 24-28 h. p. Columbia; five persons.

Percy P. Pierce, Buffalo, N. Y., 40-45 h. p. Pierce Great Arrow; four persons.

Archie E. Hughes, Philadelphia, Pa., 40-45 h. p. Pierce Great Arrow; four persons.

W. C. Durant, Jackson, Mich., 22 h. p. Buick; four persons.

Arthur L. Rich, New York City, 40 h. p. Lozier; four persons.

I. C. Kirkham, New York City, 16 h. p. Maxwell; four persons.

John L. Snow, Boston, Mass., 30 h. p. Peerless; four persons.

Earnest Keeler, Lansing, Mich., 28-30 h p. Oldsmobile; four persons.

W. H. Owen, Lansing, Mich., 28-30 h. p. Oldsmobile; three persons.

Charles Burman, Cleveland, O., 45 h. p. Peerless; four persons.

S. B. Stevens, Rome, N. Y., 40-60 h. p. Darracq; four persons.

J. H. Becker, Clyde, O., 35 h. p. Elmore; four persons.

Frank E. Wing, Boston, Mass., 30 h. p. Marmon; four persons.

H. K. Sheridan, Cleveland, O., 18 h. p. White; four persons.

Palmer Abbott, New Orleans, La., 28-30 h. p. Oldsmobile; four persons.

Penalized Contestants—Glidden Contest.

R. R. Owen, Lansing, Mich., 28-30 h. p. Oldsmobile; four persons; one point.

E. R. Lozier, New York City, 40 h. p. Lozier; four persons; one point.

Maxwell S. Hart, New Britain, Conn., 24 h. p. Corbin; four persons; two points.

W. W. Burke, New York City, 40-45 h. p. Columbia; four persons; three points.

W. A. Danzer, Hagerstown, Md., 24-28 h. p. Crawford; four persons; seven points.

T. B. C. Forbes, New York City, 16 h. p. Reo; four persons; three points.

J. H. McDuffee, Chicago, Ill., 30-35 h. p. Stoddard-Dayton; four persons; 10 points.

John Banford, Lansing, Mich., 28-30 h. p. Oldsmobile; four persons; 12 points.

Philip S. Flinn, Pittsburg, Pa., 37 h. p. Pierce Arrow; five persons; 19 points.

Elwood Haynes, Kokomo, Ind., 50 h. p. Haynes; five persons; 36 points.

Theodore E. Schulz, New York City, 30 h. p. Marmon; four persons; 36 points.

Walter L. Marr, Jackson, Mich., 30-35 h. p. Buick; four persons; 40 points.

Frederick J. Pardee, Chicago, Ill., 24 h. p. Packard; five persons; 54 points.

Robert B. Crawford, New York City, 50 h. p. Stevens-Duryea; five persons; 87 points.

Benjamin H. Knowles, Brooklyn, N. Y., 30-35 h. p. Locomobile; four persons; 89 points.

Charles G. Wridgway, New York City, 30 h. p. Peerless; four persons; 119 points.

W. L. Davis, Hartford, Conn., 20-25 h. p. Pope-Toledo; four persons; 179 points.

Joseph A. Mechaley, Stamford, Conn., 20-28 h. p. Pope-Hartford; four persons; 239 points.

Philip Corbin, Jr., New Britain, Conn., 24 h. p. Corbin; four or five persons; 248 points.

Gus G. Buse, Buffalo, N. Y., 24 h. p. Packard; four persons; 262 points.

Frank H. Peitsch, Chicago, Ill., 35 h. p. Peerless; two persons; 365 points.

James Laughlin, 3d, Cleveland, O., 30-35 h. p. Cleveland; four persons; 663 points.

Perfect Scores—Deming Contest.

C. W. Kelsey, Tarrytown, N. Y., 36 h. p. Maxwell; four persons.

Augustus Post, New York City, 18 h. p. White.

Watson Coleman, Lynn, Mass., 18 h. p. White; four persons.

J. G. Cassatt, Philadelphia, Pa., 18 h. p. White; four persons.

Penalized Contestant—Deming Contest.

L. F. Braine, New York City, 15 h. p. White; three persons; 157 points.

Those Who Started and Withdrew.

Charles Y. Knight, Oak Park, Ill., 30-45 h. p. Silent Knight; four persons.

Webb Jay, Chicago, Ill., 18 h. p. White; four persons.

Elbert Milton Wiley, New York City, 24-30 h. p. Clément-Bayard; five persons.

H. E. Shiland, Jackson, Mich., 30 h. p. Buick; four persons.

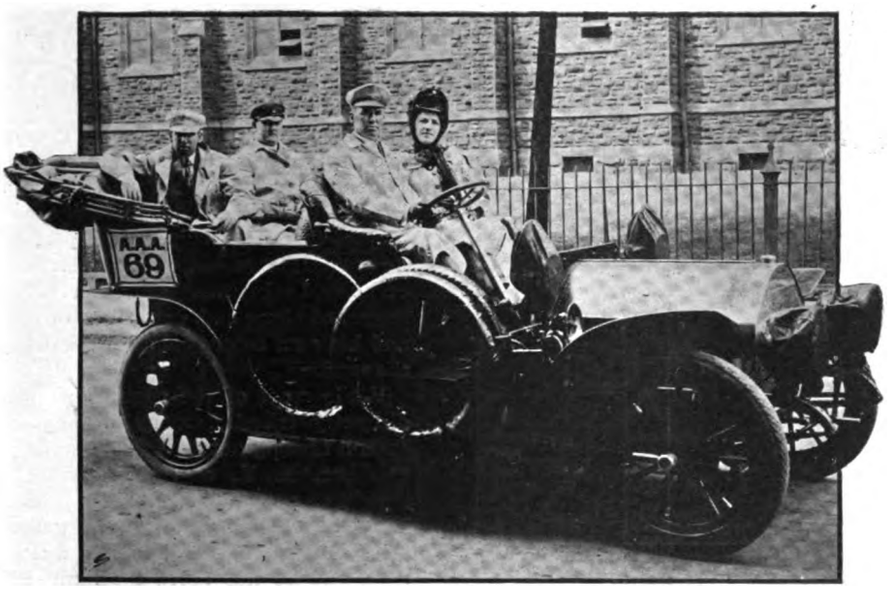
John W. Breyfogle, Rochester, N. Y., 50 h. p. Gearless; four persons.

Thomas F. Moore, New York City, 30 h. p. English Daimler; four persons.

Charles L. Auger, Paterson, N. J., 20 h. p. Stevens-Duryea.

Andrew A. Russell, Grand Rapids, Mich., 40 h. p. Harrison; four persons.

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MR. AND MRS. B. H. KNOWLES IN THEIR LOCOMOBILE.

During those first two days, a number of penalizations were made, but such strenuous protests were lodged, involving charges of faulty timekeeping and untrustworthy watches, that all of the penalties were removed. It was because of these remissions that a number of the perfect 27 are able to exhibit clean bills of health. Being an official of a contest of such magnitude is not all "peaches and cream."

These and other minor causes created friction during the first few days. Many of the men possessed of high powered cars conceived that the proper way to tour was to rush from the starting point to the finish in the quickest time possible. The bare idea of travelling according to a schedule was a collar that chaffed them and caused them to snarl. Since that time some of these men have seen a great white light. They have learned that even their cars, capable of from 35 to 50 miles an hour, are not always equal to the task imposed of following an even schedule of from 15 to 18 miles an hour, and that their judgment of time is not as faultless as they fancied. It is the old, old story of "many a slip 'twixt the cup and the lip," which on American roads, at least, so often brings down several days' travel to an amazingly low average. In fact, the schedule as far as Saratoga was figured on a basis of 20 miles an hour; since that time it has been reduced to about 15 miles an hour, and there have been few grumbles because of the reduction. Perhaps the crowd is learning how to tour.

For a simple pleasure tour, the route of this Glidden contest, scarcely could be surpassed. From Buffalo to Quebec via the Adirondacks and from Quebec through the White mountains to Bretton Woods, suggests such a wealth of experiences and nature pictures and fine air as to charm even the imagination and to cause the actual tourist to become a billionaire in respect to those pleasures. But the dust of large parties and the necessity of traveling for business, or, according to watches, detracts, of course, from the enjoyment. However, let it be not understood that it is all busi-



THE OLDS GENERAL UTILITY CAR.

ness for the Gliddenites or the Demingiters There are some days of short travel—today was one of them—and there are some days of no travel at all—Sunday was spent at Saratoga—when the participants must either seek pleasure or mope and grumble. They are forced to see something more than dust and mile-posts and watch dials in spite of themselves, and possibly before the end at Bretton Woods on July 28th they may be able to say that they actually have toured.

Of course, not all the roads are smooth nor are all the hills either even or easy, but the average tourist, much less one who considers himself fit to enter a touring contest, who expects otherwise, had best remain at home. The fact was made apparent on the very first day. The route was from Buffalo to Auburn, N. Y., 135 miles—the longest day's travel on the itinerary. It was in the nature of a "weeding out" test although few were "exterminated." But there was a deal of bad going. It was directly responsible for the snuffing out of the hopes of C. Y. Knight, the Chicagoian, who had dreamed of a conquest that would cause his new car, the Silent Knight, to be emblazoned in a halo of glory that would light the way to bags of gold. The rough roads literally shook the water out of the silent one. They opened the cooling pipes, the water leaked out, the engine overheated, the pistons seized and that was the end of Knight. He returned by day to Chicago. Webb Jay, also of Chicago, was the other unfortunate, but his distress was from quite another cause. While his White steamer was being filled with gasolene at Geneva, the fluid slopped over and reached the pilot light. The conflagration that followed destroyed the car and injured the man who had been doing the filling. It was Webb's first appearance in a contest since the memorable accident in Buffalo, which so nearly caused the pearly gates to open to him. The accident was particularly untimely as Mrs. Jay and Master Jay were accompanying Webb and their anticipated pleasure was cut short.

The others who were made unpleasantly aware of the roughness of the road were H. E. Shiland (Buick), who broke his rear



MR. AND MRS. J. H. BECKER IN THEIR ELMORE.

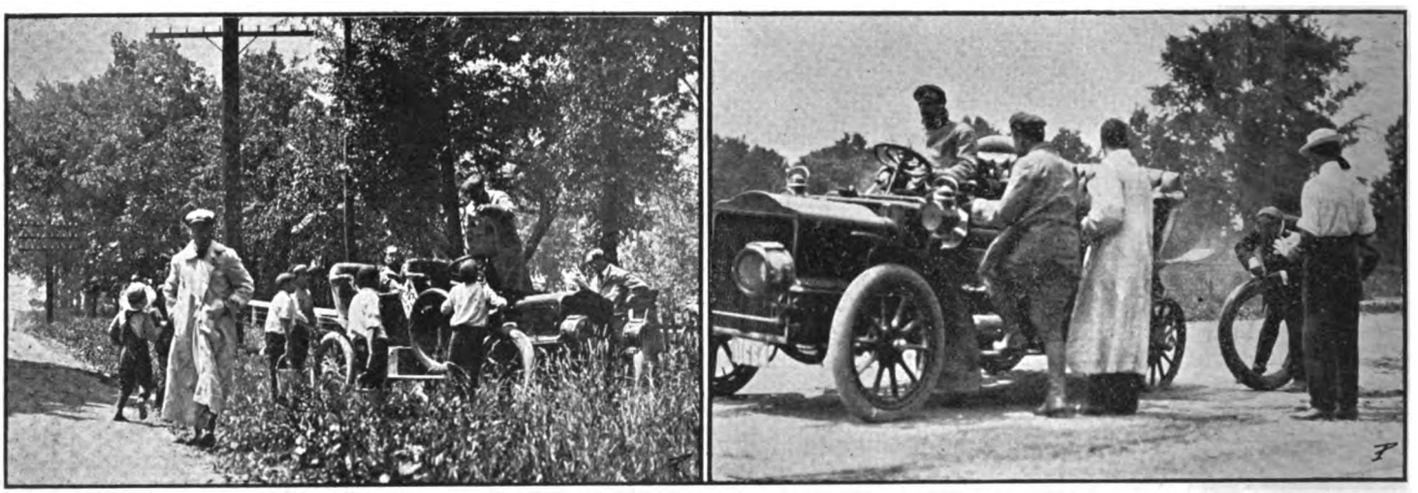
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THE LIMA (N. Y.) "RECEPTION COMMITTEE."—THE ARREST.

axle; J. W. Breyfogle (Gearless), who suffered a broken spring, and J. H. Becker (Elmore), who struck a big rock with such force as to bend an axle and to toss Mrs. Becker out of the tonneau. Fortunately, she was not injured. J. A. Mechaley (Pope-Hartford), ran into a mud-hole up to his hubs and afforded an opportunity for a display of that fellowship on the part of business rivals that since has been exhibited on several occasions. Edw. Lozier (Lozier) happened along and, regardless of schedules and his own score, pulled Mechaley out of the mud.

While most of the country people were distinctly friendly, many displaying flags and all turning out as if for a circus parade, at Lima, N. Y., a valiant police officer sought to prove that he "knew beans." He laid a trap for the tourists and gathered in six of them. F. Ed. Spooner was one of them and he was taxed the limit, $25, and also $5 extra for "interfering with an officer in the discharge of his duties," the inter-



FAMILIAR SCENES BY THE WAYSIDE.

ference consisting of attempting to warn other tourists of the trap. Spooner, however, had an eye to business, same as the constable. He takes photographs for a living and had his camera with him. While fresh victims were awaited or being arrested, he "caught" the constable in the act several times. The resulting pictures were among the most salable secured that day.

At Auburn that night the hard working officials of the contest began to learn how easy it is to not satisfy everyone. When the penalties were announced the first howl went up and it did not cease until the points had been remitted. Again, in the morning, the wail arose in a new spot. The hotel proprietor had tripled his rates for the occasion.

The men who will have to bear the brunt of this sort of thing are Paul H. Deming, chairman of the A. A. A. Touring Committee, who is here, there and everywhere, and A. B. Tucker, superintendent of the tour, who is traveling in an Oldsmobile, accompanied by Dr. E. H. Vaughn, the official

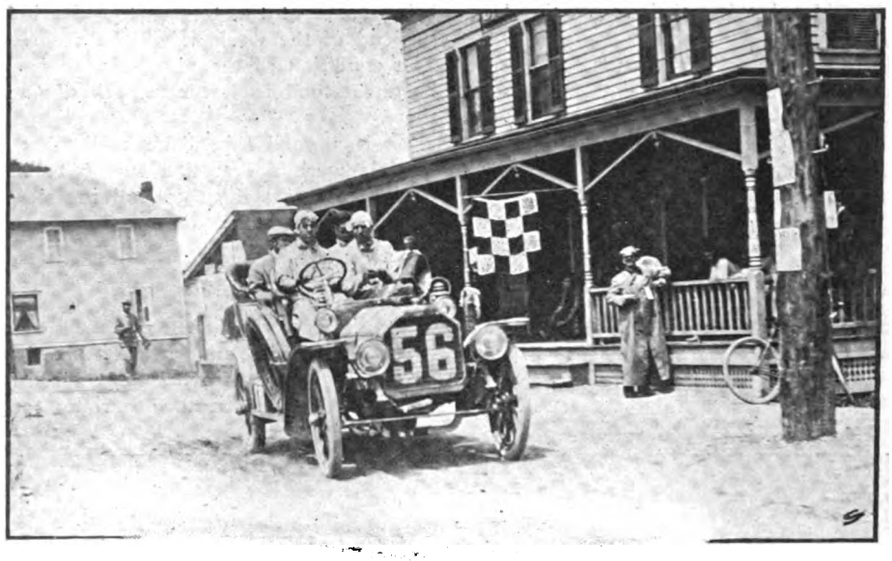


TYPICAL SCENE—WAITING FOR TIME TO EXPIRE.

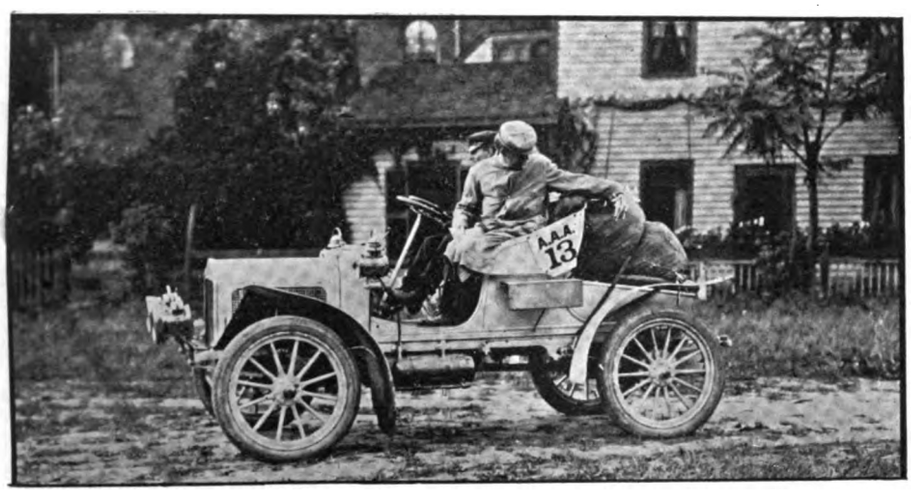
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surgeon—the latter a thoughtful office that already has been proven worth while. S. S. Gorham, secretary of the A. A. A., is likewise in evidence, and is bearing his share of the workers' burdens.

The run on the second day, Friday, July 13th—ominous day and date—was from Auburn to Utica, 75.3 miles. It was practically without incident. The chief occurrence in that line was a give-us-each-day-our-daily-bread grumble that arose. No time allowance is being made for meals and few of the contestants had provided themselves with edibles. Some of them went hungry and the growl that went up arose from their stomachs. Mr. Glidden consoled them with a speech in which he told how he and Mrs. Glidden had often gone hungry in distant lands during their globe girdling journey. The contestants agreed that the speech was not very filling or satisfying, but they are now stowing their cars with



TYPICAL CHECKING STATION, MARKED BY CHECKERBOARD FLAGS.

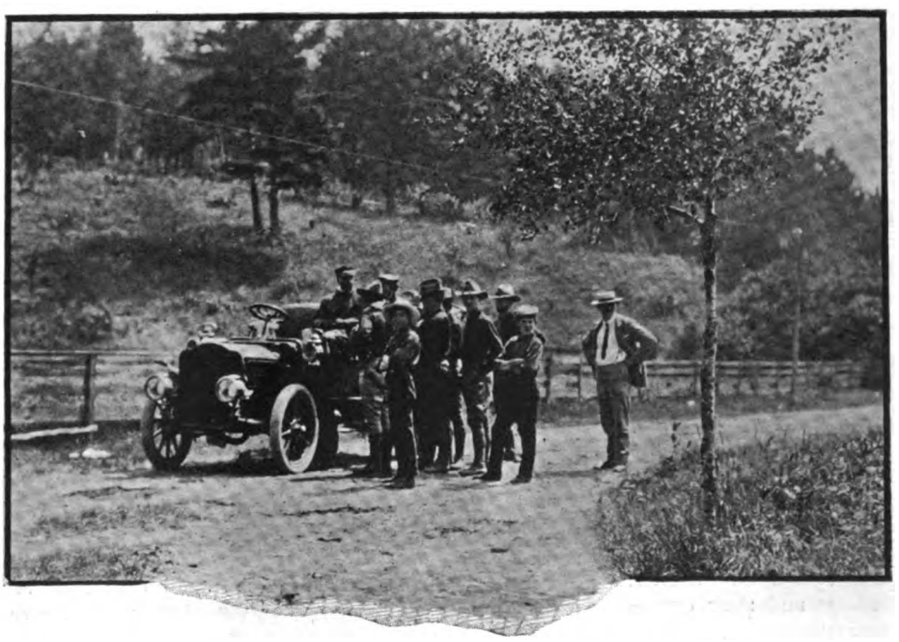


WALTER C. WHITE AND HIS BALE OF CONFETTI.

food and drink. In a contest in which minutes count, stops even for such things are often inadvisable and costly.

On the third day the tourists began to "go up in the world" and some of them found it a difficult proceeding. Utica to Saratoga, 91.4 miles, was the route—one that penetrated the foothills of the Adirondacks. There was a plentitude of sand and more than a sufficiency of water breaks or "thank-ye-ma'ams," which latter played the deuce with the low-hung foreign cars, of which but four had started. Two of them suffered damage this day. Wiley's Clément-Bayard broke an axle and the flywheel casing of Morris's Daimler was knocked off. Of the American cars, Russell's Harrison broke a spring; Knowles's Locomobile broke the cable of its emergency brake in an effort to avoid a collision and backed into a clump of trees causing some further slight damage; Danzer's Crawford bent an axle, and Wridgway, who has had troubles of his own, punctured the fuel tank of his Peerless. The lamentable happening of the day was the loss of a finger by Will Birmingham, the chauffeur of Pardee's Packard. In attempting to make an adjustment while the car was in motion, his finger was caught in the gear wheels and so badly crushed as to require amputation. Near Amsterdam, there is a stiff rise studded with thankyema'ams, called Schwartz's Hill, that gave a number of the cars more than they wanted. They required horseflesh power to reach the top. Some of the sufferers vow that the grade was fully 40 per cent.—but that was merely a freak of their then troubled fancies.

Sunday, 15th, was a day of rest. It was spent in Saratoga, where the air is invigorating and musty water bubbles from many springs. The Demingiters "had it all over" the Gliddenites during the stay. The former were free to use their cars in seeing all that was to be seen. The Glidden contes-



MEETING THE SOLDIERS WHO WRECKED THE BRIDGES.

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tants could only view theirs from the door of the garages.

Elizabethtown, a little summer resort high up in the Adirondacks, was Monday's destination. The run as outlined called for 91.4 miles of travel, and it was the most eventful and picturesque. The route led over mountain roads, through gorges and along the edges of precipices. There were many minor mishaps, but no serious accident. Early in the day Walter White, in the confetti car, smashed a wheel on a boulder and it remained for H. A. Grant, the other confetti strewer, to discover that three bridges had been wrecked by the mule teams of a detachment of soldiers marching from Plattsburg to the camp at Mount Gretna. A detour by Keene Valley was found necessary, which added nearly twenty miles to the day's journey. The detour led through Chapel Pond notch, a beautiful path between mountain peaks, which, it is said, no automobiles have hitherto travelled. Within a distance of five miles the road made an ascent of nearly one thousand feet, with a corresponding descent into the picturesque valley beyond.

The route lay between big boulders that scarcely left room for a machine to get by without scraping and precipices that fell for hundreds of feet from one side. The roadbed was alternately of sand, rock, corduroy and clay, with frequent mud holes, into which the cars sank almost hub deep, and for long stretches it was covered with fine wood shavings. As a result of these conditions the arrival of the contesting cars here was later than scheduled, and many machines limped in with sprung axles, broken springs and flattened tires.

The cars and their occupants received a fearful racking. If the strains set up do not bring some of the former to grief before the end of the week, it will be surprising. The condition of the passengers best may be understood from the remark of one of them.

"It is a good thing," he said, "that the officials were not around to-day to insist on the cars carrying their full complement of passengers at all times. We were in the air most of the time."

Several hairbreadth escapes were reported. George O. Draper's Packard, a non-contestant, skidded at a sharp turn, and the two right wheels hung over the embankment with a drop of over one hundred feet. It required twenty men with ropes to put the car back on the road. W. H. Marr, in his Buick, had a similar experience.

At another point C. G. Wridgway's Peerless was ditched in a quagmire, and eight machines were held up for half an hour while their passengers aided in raising the car. J. M. Morrison's Pope-Toledo, a non-contestant, ran into a boulder and smashed a wheel. E. Haynes's Haynes car, Ezra Kirk's Thomas and W. H. Davis's Pope-Hartford were ditched, and the six-cylinder Stevens-Duryea broke its transmission.

The Knox truck, carrying the baggage of the tourists, ran over an embankment nineteen miles from Elizabethtown and blocked several cars. The truck remained in its perilous position all night and was only rescued when a gang of lumbermen built a road for it and hauled it back. It was uninjured and started at the first turn of the crank.

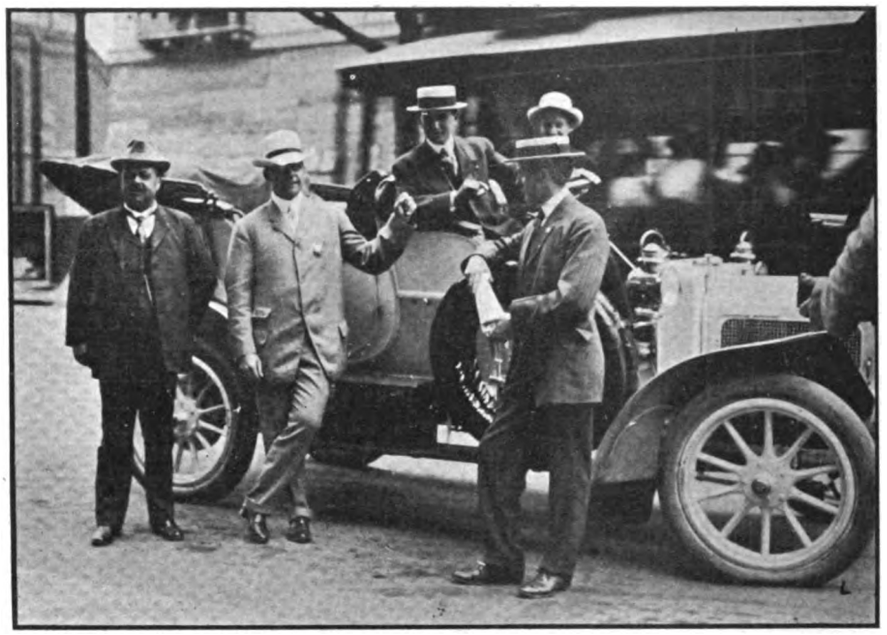
The delays and the distance added by the detour caused some wild racing to reach Elizabethtown on time, but despite the reckless driving a number of cars were from a half hour to an hour behind the original schedule. The committee met at once and added seventy-five minutes to the scheduled time with the proviso that no protests for interference by stalled cars would be entertained.

Tuesday, 17th, the card called for but 37.6 miles, to Champlain—one of the most glorious spots on the great mountain lake of that name it is possible to find in the East. It was an easy run through magnificent scenery and few they were that regretted the day's short travel.

The tourists spent the afternoon in various ways. Some went bathing, others took walks through the woods, a number played baseball and some embraced the opportunity to rest after the strenuous run of the previous day from Saratoga to Elizabethtown. In the evening they attended the concert given by the Troy Vocal Society in their honor.

The route from Champlain is as follows:

Wednesday, July 18, Lake Champlain to Montreal	72.4
Thursday, July 19, Montreal	
Friday, July 20, Montreal to Three Rivers	96.1
Saturday, July 21, Three Riverfs to Quebec	81
Sunday, July 22, Quebec	
Monday, July 23, Quebec	
Tuesday, July 24, Quebec to Jackman, Me.	112.5
Wednesday, July 25, Jackman to Waterville, Me.	81
Thursday, July 26, Waterville to Rangeley Lakes	103
Friday, July 27, Rangeley	
Saturday, July 28, Rangeley to Bretton Woods	123



C. J. GLIDDEN, PAUL DEMING AND S. S. GORHAM IN FRONT OF WEBB JAY'S ILL-FATED CAR; JAY AT THE WHEEL.

Premier Gathering Road Data.

Information concerning the roads of the State of Indiana being a somewhat minus quantity, the Premier Motor Mfg. Co. has undertaken to supply the deficiency for the benefit of the motoring fraternity. To that end one of the officials of the company starts out with a car every few days and explores the main roads in various directions, the first trip of this kind having been made last week by H. O. Smith, president of the company, in a 24 horsepower air-cooled Premier runabout. Louisville, Ky., was the objective point—a distance of 138 miles, the round trip being covered in slightly over twelve hours running time, despite the fact that the exploring party found the roads in a great many places were far from being what they should. The car, which, according to its driver, "never missed a lick the whole way," is shown by the accompanying photograph. The work will be continued until all the principal roads in Indiana have been covered, and the information obtained will then be published in condensed form for the benefit of local owners and tourists.

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WASTAGE OF POWER

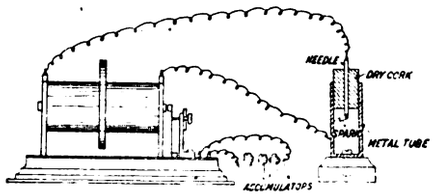
Things that Indicate the Wastage and an Interesting Experiment.

Despite the amazing results achieved in recent economy tests in the matter of mileage and fuel consumption, a matter of absorbing interest to every motorist is raised by an Englishman by the question, "Do we waste petrol?" Translating the last into gasolene the experiments he conducted would appear to answer the query in the affirmative. To ascertain in an offhand manner how much gasolene, or rather how small a proportion of fuel was actually required to cause an explosion, a piece of metal tube closed at one end was taken. A needle was inserted through a cork so that its inner end projected into the open part of the tube and the latter was closed with this improvised spark plug. The high tension terminals of an induction coil having a capacity of bridging a five-inch gap were connected to the tube and needle as indicated by the accompanying sketch. This completed the testing apparatus as scientifically accurate results were not looked for.

The smallest possible amount of fuel was put into the tube, this being accomplished by dipping the finger in gasolene and allowing it to evaporate almost entirely and then rubbing the inside walls of the tube with the finger. The cork was violently blown out immediately upon closing the circuit through the coil, and what is far more interesting, this performance was repeated by simply replacing the cork and switching on the current, it being ascertained that as many as four explosions, apparently all of about the same power, could be obtained from the one microscopic charge of gasolene mentioned. This would appear to demonstrate that a charge of gasolene vapor and air is capable of being partially exploded, and that the combustion of the remainder is prevented by the violence of the explosion itself, but that if the spark were repeated a second, third and usually a fourth explosion, all of them of considerable force, could be obtained.

To a certain extent this is a theory that has been upheld for some time by the advocates of both the jump spark and the make and break systems of ignition, the former owing to the succession of sparks that take place as the result of the high rate of speed at which the trembler makes and breaks the circuit, and the latter on the theory that the much larger and hotter spark caused by the hammer and anvil of the low tension system is better capable of completely consuming the charge. Judging from the results of the experiments alluded to, the contentions of the advocates of the jump spark would appear to be substantiated in that it is not the amount of fire, provided the latter is sufficient to ignite the mixture, but its repitition that increases the efficiency.

It would further seem proved, at least tentatively, that the exhaust of the average engine as it issues from the muffler is still of an explosive nature—more so in some instances than others, of course, which explains the strong smell of gasolene noticeable from some cars. And that the only thing preventing the explosion of this wasted fuel is the fact that it is no longer



combined with air in the proper proportions to constitute an explosive mixture. This indicates that the full value of each charge of mixture drawn in by the piston is not utilized, but that a certain proportion of the fuel is constantly being wasted despite the existence of ideal conditions in every other respect. Further research and more accurate experiments on the subject should certainly prove of real interest and would in all probability lead to a better knowledge of the phenomenon taking place in the cylinder.

Too Ready Use of the File.

It is just as well not to be too ready with a file in attempting to set things right about the car. This applies particularly to the needle of the carburetter. In any but skilled hands a file is more apt to prove the means of destruction than repair, so that when it looks as if the needle of the carburetter jet did not seat well, it will prove to be by far the better part of discretion to let well enough alone until the proper facilities are at hand to effect the desired change.

A file appears to be about the simplest tool to handle that could possibly be devised but not one man in a hundred who has not had previous experience in its use can file a true surface. As to achieving the perfect symetry requisite in the carburetter needle, that is asking too much. Nothing short of a lathe will do it and a few minutes with a file on such a piece will mean an entire replacement every time.

Unsuitability of Picric Acid.

Picric acid possesses a very high potential, but has other properties of a less satisfactory nature says an authority. Both its tendency to enter into combination with metals and salts through mere contact, forming corresponding picrates, picramates and various reduction compounds, all of which are extremely sensitive and chemically unstable, and the poisonous vapors given off by it during manufacture and melting, are causes of unavoidable trouble and risk and make it unsuitable for use in the cylinder of the internal combustion motor.

ADJUSTING BRAKE CABLES

How Best to go About it—When "Splicing" the Ends is Necessary.

Where wire cables are employed in the connections of the rear wheel brakes of a car, they never should be adjusted by altering the position of the fasteners. Rather, the alteration should be accomplished by twisting the cable until it has been shortened by the proper amount. This method allows for a surprising range of adjustment before the kinking point has been reached, and gives far more satisfactory results than the alteration of the regular fastening is apt to do. For at best, such devices are wont to slip, and indeed, it is held by most "sailormen," whose authority may be considered good in the matter, that it is impossible to secure wire rope of any description without splicing it, all of which notwithstanding the fact that it is contrary to the assertions of the makers of such affairs.

Where possible, it is best practice to have a good "hand" splice both ends to the brake arms, after which the splices should be served with malleable iron, or soft copper wire, which then is tinned thoroughly, making a uniform metallic "parcelling," no part of which will release the strands of the cable, should any of the others give way. After the splices have been completed, eyelets should be forced into them to prevent the cable from chafing against the arms, when the joint may be relied upon to last as long as the cable itself. In measuring the length before commencing operations, allowance should be made to have the brakes set when the lever is at about half throw, as the average new cable stretches considerably before settling down to its work. After the loops have been completed, and the stretch taken out by leaving the brakes set for a time, final adjustments may be made by twisting or untwisting, as the case may be.

In use, such connections always should be well lubricated. There is more or less working through the arms and between the two brakes, which is essential to the equalizing of the strain on the wheels. The efficiency of the system depends upon the facility with which this can be done, and hence, it should be seen to that no rust is allowed to accumulate in the strands. At frequent intervals heavy grease should be smeared into the parts where chafing is likely to occur, and at the same time the condition of the cable at such points should be noted to see that no wearing has taken place with consequent weakening.

When one of the hose couplings of the circulation system bursts on the road, think of that spare piece that you "have been going to cut and put on the car for the last month."

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Motor Minus Shafts and Cams.

Rather a novel form of gasolene motor working on the Otto cycle, but having no side shaft or cams of any description, was recently exhibited abroad. In this engine the exhaust valve is opened by a relay, which takes its supply from the main cylinder when a port is uncovered by the piston on reaching the end of its forward stroke. It will be seen, therefore, that unless the charge is fired the exhaust valve does not open, and the charge remains in the cylinder. This feature is made use of in governing the engine. The ignition is electrical, and the governor consists simply of a weight mounted on a spring attached to the flywheel. As the speed rises, this weight moves out under the action of the centrifugal force, and in doing so opens a switch in the ignition circuit, thus preventing the charge being fired. The latter remains shut up in the cylinder, as already explained, and is fired when the speed falls low enough to allow the switch to close. The spark is timed by a rod attached to the piston, which separates the contacts inside the cylinder.

Where White Lead is Freely Used.

Large quantities of white lead are used in the carriage factories engaged in the building of better grades of work. The lead is invariably placed between the wood and iron rocker plates whether large or small. Even the screws with which the latter are fastened are dipped into the lead. All irons fitted to wood in any form in the smith or body shop should be white leaded, as well as the bolts which are used. It not only tends to preserve the wood, but prevents rust.

Another important point is that the paint adheres much better to the corners of the iron and wood, and it will not chip off, as it frequently does. Panels which enter the grooves on wagons and carriages should always be white leaded for the same reasons in order to keep the water out and allow the paint to adhere more firmly. The white lead is used, as it comes from the keg, subject to a little thinning of japan to make it dry more quickly.

How Quality of Metal Tells.

When parts develop a habit of breaking it is usual to attribute it to faulty design or insufficiency of metal and the size is usually increased. This was originally the case with crankshafts, though it was evident that there must be a close limit to the dimensions as well as the weight. Then it became apparent that the best method of making them stronger was to reduce the size and better the quality of the steel. This applies to every other part of the car called upon to bear severe stresses—a particular quality of steel is employed for each and what will do for gears will not answer for shafts. Crankshaft steel is usually made with a breaking limit of 90 tons, an elastic limit of 70 tons and an elongation of 18 per cent. in 2 inches, although steel is also made for this purpose that has a breaking limit of 110 tons.

To Burn Paint from Bodies.

To burn the paint from a carriage body there are three important essentials to be taken into account, says a carriage expert. First, the lamp or burning torch. Second, the knife and scraper. Third, knowing how to do the work. The lamp best adapted to burning paint from the carriage has already been referred to several times. Suffice it to say, therefore, that it should be a strong, safe and good burning lamp—one with the capacity for throwing a flame of intense heat upon the surface. The knife should be a 2½-inch blade French scraping knife, half elastic. Knowing how to do the work is a part of the trade exemplified in the custom paint shop that all painters should know.

"Burning off paint" is, to a certain extent, apparently a misleading term, for if burning off were literally practiced we suspect there would be great trouble in store for the painter. "Burning off," therefore, consists, accurately speaking, of heating the paint until it softens to permit easy and perfect removal of the pigment structure. To burn the paint from the carriage body, proceed as follows: Hold the lamp or torch in the left hand, which, preferably, should be encased in a sheepskin harvesting glove or mitten, as should also the right hand. Hold the knife in the right hand. Begin burning on the left hand side of the panel, and this will permit throwing the scorched and softened paint over the remaining paint coated surface.

If carried over a part of the surface already cleared of its paint coating, the hot and sticky pigment is liable to fall and adhere to and scorch the wood before it can be removed therefrom. At all events, it is not a good practice. It is best in case of moldings, etc., to soften up and remove the paint from these parts first, and then in burning the main surface to cover the moldings with pieces of tin cut in proper lengths and shaped to the moldings.

Old strips of tin will do for this purpose and can be prepared at comparatively small cost. Hold the knife onto the surface at an angle of about 45 degrees, and be careful to avoid gouging the surface. Fracturing and gouging the surface entail oftentimes a good deal of extra expense in restoring, or endeavoring to restore, such a surface to its original condition. The more thoroughly the surface is maintained free from blemishes and defects during the burning off process the less the expense attached in conditioning it for the priming coat.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price 50 cents. The Motor World Publishing Co., 154 Nassau Street, New York City.

Brazing of Cast Iron.

Cast iron may be brazed by the use of equal parts of burnt borax and either the black or red oxide of copper. The two should be finely powdered and thoroughly mixed. They are then mixed with water to a suitable consistency and the joint to be brazed is coated with the compound. The joint is then heated and ordinary brazing solder applied in the usual manner, some burnt borax being added as a flux. When the brazing solder has permeated the joint the operation is finished and the cast iron will be thoroughly united. This is known as the Pinch process and depends upon the reaction which takes place between the carbon in the cast iron and the oxide of copper. Ordinary methods of brazing cast iron fail on account of the presence of carbon in it, which prevents the brazing solder from adhering. The oxide of copper is reduced to metallic copper by the carbon in the surface of the iron and carbonic acid gas is formed. This escapes at the same time the metallic copper adheres to the clean surface thus formed. If a good job has been made it will be found that a new fracture will occur at another point.

Features of Vinet's Rim.

"Won by a rim" seems to have been the gist of the verdict in France's recent "frame-up"—the Grand Prix. What the rim—the invention of M. Vinet—is like is naturally of interest. This "jante amovible" is of the regulation clincher type, but is provided with eight substantial lugs extending vertically downward and drilled to receive bolts. The wooden felloe of the wheel is capped by a rim that is perfectly flat on top, but the sides of which embrace the felloe itself. It is provided with a similar number of lugs correspondingly placed. Eight bolts and nuts complete the device. A tire is placed on the removable portion of the rim and inflated in advance. To make use of this spare it is only necessary to withdraw the eight bolts after removing the nuts and substitute the new rim and tire for the one taken off. A record of three minutes for the complete operation was attained during the race.

To Prevent Water from Freezing.

From the other side comes an expedient to prevent damaging the engine through inadvertently permitting the cooling water to freeze that should prove as effective as it is simple—a rather unseasonable suggestion at this time. It merely consists of making two one and a quarter inch openings in the cylinder jackets where the pressure naturally becomes greatest upon expansion, and covering them with thin plates of ebonite held in place by screws. One of these outlets is placed on each twin cylinder casting and when the pressure of the increased volume of water becomes too great one of the plates gives way and relieves the tension. This is a feature of the Rossel car.

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STUNTS AT ROCHESTER

They were Substituted for a Parade and Provided Fun and Entertainment.

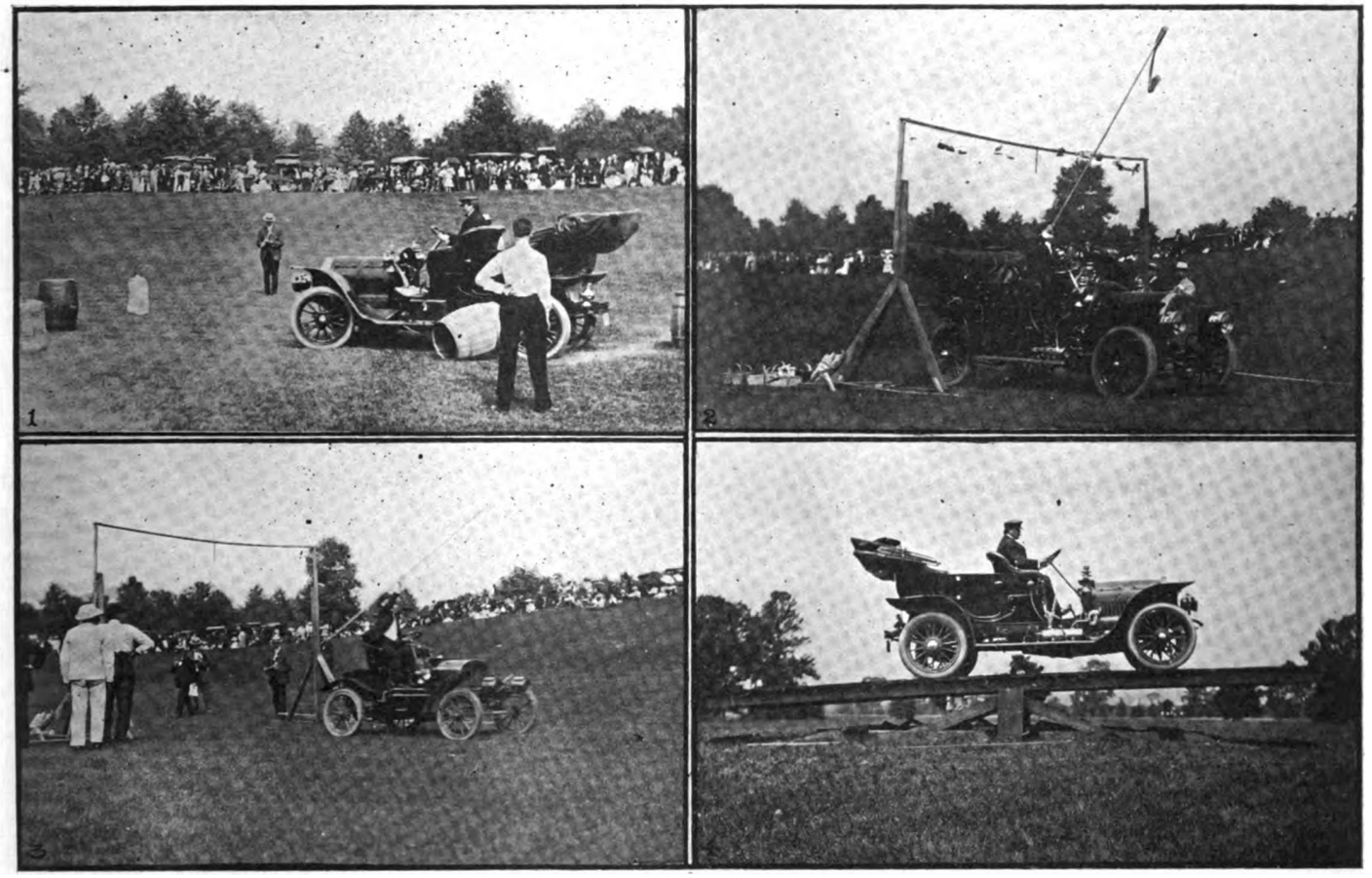
Because the members of the Rochester Automobile Club feared to ruin the finish of their cars by decorating them with flowers and bunting, the proposed floral parade, which had been scheduled for Saturday, 7th inst., was called off, and in its place was substituted an automobile gymkhana, as the star event of the annual field day at Genesee Valley Park. There were five different events in all, comprising tilting matches, obstacle and potato races, and in conclusion a balancing match, in which the contestants drove across a giant see-saw, and after covering a short course, returned to the judges a pail of water which had been carried in the tonneau, the weight of which, compared with its original condition, determined the success of the trial.

Charles L. Reed carried off the honors in the first event, "driving for scarfs," by lifting two of the brightly colored neckties from their wires on the end of his ten-foot spear. By the conditions imposed, each contestant had to cover a measured course in stated time, thus assuring him a speed of about eighteen miles an hour as he came to the first of the wires. These were strung across the course at short distances from one another and about ten feet from the ground. From each was hung a gaudily colored scarf with three or four inches of its length below the wire. The duty of the driver was to spear as many of these as possible on the end of a shaft with which he was provided, at the same time guiding the car at the required rate of speed. Henry G. Strong and Charles H. Stearns tied for second place with one scarf each, but after several additional trials, Stearns took second, leaving the third prize to Strong.

In the second event, in which the conditions were the same except that small metallic rings were substituted for the scarfs, the first prize was won by J. W. Cook, who carried off two of the rings, after a close contest with Dr. A. R. Fritz, who tied him at first but lost in the run-off.

The obstacle races over a 125-yard course, half of which was clear, and the remainder beset with barrels and other impediments, was productive of the most amusement afforded during the day. It was divided into two classes, the first for cars of 100-inch wheel base or more, being won by Bert F. Seilers in 33 seconds, second honors going to Henry G. Strong. In the class for cars of less than 100-inch base, A. M. Zimbrich won in 24 seconds, while second best time was made by Charles L. Reed in 29½ seconds, but his misfortune in striking one of the obstacles forced him down to third place.

In the balancing test, each entrant was required to start with a pail filled with water weighing 27 pounds. After making a detour, the 10 per cent. grade of the see-saw plank was charged, the plank balanced for an instant, and the other side coasted down as it touched the ground, after which the contestant returned to the scales carrying the pail with what remained of its contents, and submitted it for weighing out. Henry G. Strong made the best record in the trial, returning 24½ out of the 27 pounds carried off, while Dr. Fritz scored next best by bringing home only a quarter of a pound less. Third prize was awarded to J. W. Cook, for returning 22¾ pounds of water.



1. OBSTACLE RACE. 2. DRIVING FOR SCARFS. 3. RING TILTING. 4. BALANCING TEST.

American First Across Alpine Pass.

On June 22 last, a Packard car achieved the proud distinction of being the first touring car to cross under its own power that most lofty of Alpine passes—the Simplon, so recently opened to automobile travel. It was driven by Hiram W. Sibley, of Rochester, and upon being granted the necessary permission, started up bearing the American, Swiss and Italian colors. Short work was made of the 6,700 foot altitude, though four passengers were carried and no special preparations were made for the ascent.

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"PLAY" DUE TO GUDGEON PINS

Trouble that it Causes and an Arrangement that Remedied the Trouble.

High speed, short stroke engines are heir to a variety of troubles with the gudgeon pin. The cause of it all is the necessarily small diameter of the pin and connecting rod, plus the excessive angular movement of the latter, says the Motor Trader. The form it takes, however, varies; in some cases it is the piston that suffers, in others the pin itself wears oval, and in others the connecting rod bushing is punished. For instance, a small engine built some time ago and run for several years invariably required a renewal of the pin, neither the hole in the piston nor the connecting rod brass suffering. Another engine of different make, on the other hand, reversed the above order, so that in effect the point centers in the ability of one of the above three parts mentioned to resist wearing stress the longest.

The method of making the gudgeon pin fast has not a little to do with the trouble where slackness in the piston is concerned. In the first engine mentioned the pin was of three diameters, i. e., the piston holes were of different bores and the bearing surface for the connecting rod was of a diameter midway between the two. The method of fastening was by a split pin engaging in a hole at right angles in a filleted recess in the piston's exterior. That method avoided the common danger where a pin tapers or otherwise is used to transfix the gudgeon pin and bearing in the piston's interior. The phenomenon before mentioned showed, however, that the wear was set up by the split pin failing to prevent the pin slightly rotating, besides giving a stiffening against the vertical stress incidental to the impulse thrust and the disturbance in balance thereby set up. To correct this the piston hole was fast recessed on the outside at either end to a depth of ¼-inch, and 3/16ths of an inch in diameter. A mild steel pin was turned to fit the bore of the piston, the hole both in it and the connecting rod bush having first been parallel reamered together. The pin was fashioned with a disc flange, which was not, however, turned to directly fit the recess.

A ring line was scribed on the face which corresponded to the diameter of the recess. This was done to enable a feather point to be left, the flange being then shaped to the scribed line for the rest of the circumference. The small end of the pin was screwed to a fine pitch thread, and a loose collar threaded to suit. The face of the collar was drilled with a couple of holes to give the necessary purchase for tightening it. When the pin was in place and tightened up, a split pin hole was drilled as before, the fillet requiring but little enlarging to permit of the pin being opened and the necessary clearance for the head. The comparatively long bearing length of the lugs in the piston enabled a sufficient amount of bearing for the gudgeon pin to be retained, despite the amount occupied by the nut. No trouble was experienced with the arrangement, and the extra bearing support afforded the collars prevented an early developing of play as had previously existed.

The Causes of Rust.

It was formerly believed that the reason why iron exposed to the atmosphere rusted was because it simply oxidized. Afterwards it was suggested that the first stage in the rusting of this metal is the production, under the influence of carbonic acid, of ferrous carbonate, which is afterwards converted into rust. Five years ago, however, Prof. Dunster put forward a new explanation. He thought that pure oxygen in the presence of water attacked the iron, giving rise to ferrous oxide and hydrogen peroxide, and that a portion of the latter converted the ferrous oxide into rust, while the remainder directly attacks the iron, causing a fresh quantity of ferrous oxide, when this is again oxidized in a very similar way.

Dr. G. T. Moody has shown that if very special precautions are taken to exclude all traces of carbon dioxide, then iron may be left in contact with pure oxygen and water for many weeks, without undergoing any change. In one of the experiments thirty times as much oxygen as is required to convert the whole of the iron into oxide was passed during the course of a few weeks, but there was absolutely no rust. But if the air were not freed from carbon dioxide, rusting commenced at once, and in seventy-two hours the whole of the metal was corroded. There would seem no basis, therefore, for the assumption that iron can be caused to rust by pure water and pure oxygen only.

To Repair the Coil Box.

A broken coil box is by no means an easy thing to repair, since the degree of exposure to weather conditions which it must undergo, makes the use of glue almost an impossibility. When such a job must needs be attended to, however, the use of wood cement, made according to the following formula, will be found satisfactory, it is said. Take equal parts by weight of resin, pure yellow wax and Venetian red; melt together the resin and wax and stir in the Venetian red, agitating until a uniform and smooth mixture has been formed; apply while hot a uniform coating over the fractured parts, and bind firmly in position until the joint has set.

An ingenious British accessory dealer has recently contrived an "umbrella" dust and draught screen to be affixed to the rear of the car to protect the occupants of the rear seats from such annoyances. It is made in what is approximately semi-circular form, is collapsible, and projects from the rear very much like an old-time bustle.

CLEANING OF THE MUFFLER

Why it is Advisable and Why it Often is not as Easy as Should be.

Why should it be taken for granted that the muffler is something that need never be taken apart? That its design in numerous instances has been based upon this assertion is evident but the reason for so doing is not quite as apparent. Of course, any muffler can be taken apart and so can a locomotive boiler, but it is plain that the value of the object will disappear in the process and this must always be the case with those type of muffler in which the design and construction are of a nature that precludes a revelation of their interiors without resorting to the hammer and cold chisel.

The necessity for taking the muffler to pieces does not occur often; probably never more than once in a season, and in the majority of instances a car is usually run without attention to this essential until its condition makes it imperative. After two or three years' exposure to wind and weather without any attention other than an occasional coat of paint, a muffler is bound to prove a difficult thing to dismantle despite any provisions made to this end, as rust and dirt combine to form a powerful union between threaded joints.

No matter how thorough an overhauling may be given a car preparatory to a season's use, its entire power plant and transmission as well as running gear receiving attention, the muffler is apt to be overlooked. It is not generally considered as a part that is in need of inspection. That this is an entirely erroneous view, however, is well appreciated by every motorist who has seen a muffler dismantled after one or two season's use. Nor is there any question in the minds of those who have gone to the trouble that it is a proceeding that pays. Some people have their house chimneys cleaned regularly and others wait until they choke with soot and fill the house with smoke; this seems to sum up the situation where the muffler is concerned. Except that in this instance those who wait till the last, finally come to the muffler in search of the cause of diminished power in the engine.

At some time or other in its history every car is run with too rich a mixture or with an excess of lubricating oil, and these circumstances are combined more or less often according to the care of the driver. Every time they happen there is a deposit of soot varying with the degree in which these adverse conditions present themselves, but even proper adjustments throughout are productive of soot to some extent and some of it remains in the passages of the muffler. This is certainly a good reason why it should be well cleaned at least once a year, and an equally good one why it should be so constructed that it can be cleaned without having to practically rebuild it after the process.

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POSITION OF CARBURETTER

Its effect on the Performance of the Engine —Other Factors Involved.

How much the relative position of the carburetter has to do with the performance of the internal combustion motor, few of the general run of users on the road can begin to comprehend. Taking the engine and its accessories as they come from the maker, the only concern of the owner and driver is to get out of the machine the best service which its inborn capabilities permit. Beyond this, he is willing, as a rule, to relegate all theories to the theorists. But, however that may be, the growing demand for accurate knowledge on the part of the laity, and the ever broadening range of choice in the selection of new machines, makes imperative a better understanding of what is involved in the action of every part of the automobile, than hitherto has been required. That being the case, an intimate consideration of some of the factors which contribute to the output of power at the clutch, is worth going into.

One of the most important considerations which go to make up the complex problem of carburation and feeding the engine, depends upon the inertia of the gas. This, like the inertia of a solid body, depends upon the mass and velocity of the matter, and when it must be started and stopped in its motion at frequent intervals, brings about a lagging behind the impulsive effort, which must of necessity tend to interfere with the intended effect. In the case of the carburetter, the result of this inertia action is two-fold; first, it causes the incoming charge of gas to lag behind the suction of the piston, making the charge late in entering the cylinder, and theoretically, at least, diminishing the amount of gas drawn in prior to the closing of the inlet valve, and, second, it results in a continuance of the motion of the gas after the valve has closed, causing a slight and momentary compression at the end of the inlet piping, which, by the elasticity of the gas, sometimes is followed by a reflex action, resulting in a regurgitation at the carburetter and even the creation of a partial vacuum at the valve.

Naturally enough, this inertia effect depends jointly upon the speed of the piston, the length and diameter of the inlet pipe, and also upon the amount of opening of the air inlet at the carburetter. Moreover, in the case of the multi-cylinder motor, it varies at the different cylinders, owing to the different lengths of inlet piping. And, since this difference is not constant for all speeds and conditions, the result is a difference in the power development of the elements which varies continually. Even though this were not enough to upset the calculations of the designer, the varying humidity and temperature of the atmosphere at different times, together with the velocity of the car and the direction of the wind, also contribute a measure of attendant circumstances which have to be considered more or less in detail in the construction of the motor, and which constantly contribute an element of change to its action.

Considering the effects of these varied and varying conditions more in detail, it will be seen that to compensate for them at all times and under all possible circumstances is well-nigh an impossible task. And indeed, the so-called automatic carburetters, however bravely they may be advertised, make no attempt to compensate for anything more than the purely volumetric changes brought about by the altering speeds of the motor, coupled with the necessary combinations required by changes of load at constant speed. Going somewhat more deeply into the subject, the writer of an article recently appearing in the Autocar, shows by the reductio ad absurdum method, how clearly impossible it is to arrange for a perfectly compensating carburetter. The difficulty due to the inertia effect referred to above, is clearly demonstrated by the first example in which he says:

"Imagine the carburetter placed at the rear of the rearmost cylinder, and the combination adjusted as well as may be on the brake test, with the engine fixed and working in still air. Now place the engine in a chassis, and proceed to run the car at any great speed, and take the case of the foremost cylinder as an example. Then during any inlet stroke the direction taken by the gasses in the inlet tube is coincident with the direction in which the car is traveling. Taking the speed of the car at 50 miles per hour, or 75 feet per second, the engine running at 1,000 revolutions per minute, and the speed of the gasses in the tube due to inlet stroke at 130 feet per second, we find that the engine has to start and stop that column of gas 816 times a second, and make it attain a velocity compared to still air of 205 feet per second. The longer the pipe, the worse the result, for the reason that the column of gas will be longer and more reluctant to get moving.

"It may be thought that the carburetter is surrounded by still air, but it cannot be so, for even if the obstruction under the bonnet tends to prevent the air rushing past, yet every manufacturer arranges some fan for ensuring a rush of air even when the car is standing still. The position and design of the air intake to carburetter is important. Air pressure or vacuum here will cause wonderful changes in the instrument's effectiveness. The speed of air past the intake will be effected by head or following winds, and in the case of following winds it is possible to get quite a pressure of air under the bonnet due to the fan and wind working in opposition. The writer has noticed a decided increase in the explosion pressure due to this provision of air under pressure at the carburetter intake.

"Another effect of inertia is that the movements of the gas column due to the action of one cylinder may affect the quantity of charge admitted to a neighboring cylinder, and at certain critical speeds this effect is pronounced. Is it reasonable to expect a carburetter to discriminate between all these varying conditions and adjust itself to them? It is impossible to produce a commercial form to do it, and yet this is what each maker or inventor of a carburetter claims. Such a one would have to be fitted with the thermometers to adjust for varying temperatures of both air and gasolene, a barometer to adjust for varying air pressure, a really effective anemometer device to maintain a constant volume per unit volume of air, and a hydrometer to adjust for variation of petrol specific gravity. It is ridiculous to suggest these things, for all that is necessary to replace them is knowledge of requirements on the part of the driver and means of effecting adjustments.

"Means of adjustment are provided by the ordinary air inlet control from the steering column, which the so-called automatic carburetter is trying to displace. The automatic carburetter proposition is equivalent to placing an automatic stoker on a railroad engine, and it cannot hope to do more than provide the item referred to above, viz., uniform volume of gasolene per unit volume of air, and so far is a very necessary and useful machine, but any adjustments for temperature, barometric pressure, etc., must be made by the driver. A common method of adjusting a carburetter is to try and get the engine to run very slowly and very fast on one setting of the gasolene feed and air inlet, and trust to luck that a good mixture is being obtained at the normal working speed of the engine. This is frequently unsatisfactory when it comes to hill-climbing, and the next step is to make alterations blindly, and eventually arrive at an adjustment which enables the engine to take the car up at reasonable speed.

"The reason of this trouble is that the carburetter is usually adjusted with the engine running free—an abnormal condition, inasmuch as to obtain slow running requires a nearly closed throttle and a retarded spark, whereas at extremely high speeds the spark must be abnormally advanced, and the wire drawing of the charge produces an effect equivalent to a nearly closed throttle.

"As opposed to these conditions, hill-climbing involves moderate speed of engine and moderate advance of spark, throttle probably very nearly wide open. It is obvious that the action of the carburetter must be widely different in these cases, and that any test and adjustments should be made while the car is actually climbing and the engine under strenuous conditions, and, further, that this test should involve knowledge of the internal conditions of each cylinder.

"To sum up, it is shown:

(1.) That each cylinder has a lot of work to do to draw in its charge.

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(2.) That, in addition to the fact that it is negative work, it results in diminution of quantity of charge drawn in.

(3.) That this negative work and diminution is greater for a greater length of inlet tube.

(4.) That inlet tubes should be as short as possible, and all of one length.

(5.) That a common inlet pipe for all cylinders is inadvisable.

(6.) That a screen or pocket should be arranged to contain practically still air for use in the carburetter, which screen will protect the intake from any air current.

(7.) That the carburetter should be adjusted to the working condition of hill-climbing, and if, when so adjusted, it fails to provide easy starting or high speed, that special arrangements be made for these conditions, such special arrangemerts usually meaning a controllable air inlet

"For the consideration of those specially interested in carburetter construction, the writer suggests that if air were supplied to the carburetter at a constant pressure of a few pounds per square inch, probably the whole of the difficulties due to inlet tube vacuum and inertia of gas column would be obviated, and certainly there would be a great gain of power, owing to the fact that each cylinder would get a much larger charge."

About Malleable Iron Process.

In 1722 Reamur published the fundamental principles for the malleable cast iron process; but it is of comparatively recent years that the industrial world has utilized this knowledge, says the Engineer. It was found that if a casting too hard to work were exposed to a continuous high heat for a number of days, imbedding in rolling mill scale—hammer slag—or iron ore, the casting would entirely change its nature, and at the time stated Reamur had collected those observations and found the principles which governed this change in cast iron. The present generally accepted theory of the malleable cast iron process is to decarburize the metal by some oxide, which will impart a portion of its oxygen to the carbon in the metal at a red heat, forming carbonic oxide, which is given off, thus extracting the carbon. The oxidising reagents usually employed are rolling mill scale and red hematite iron ore.

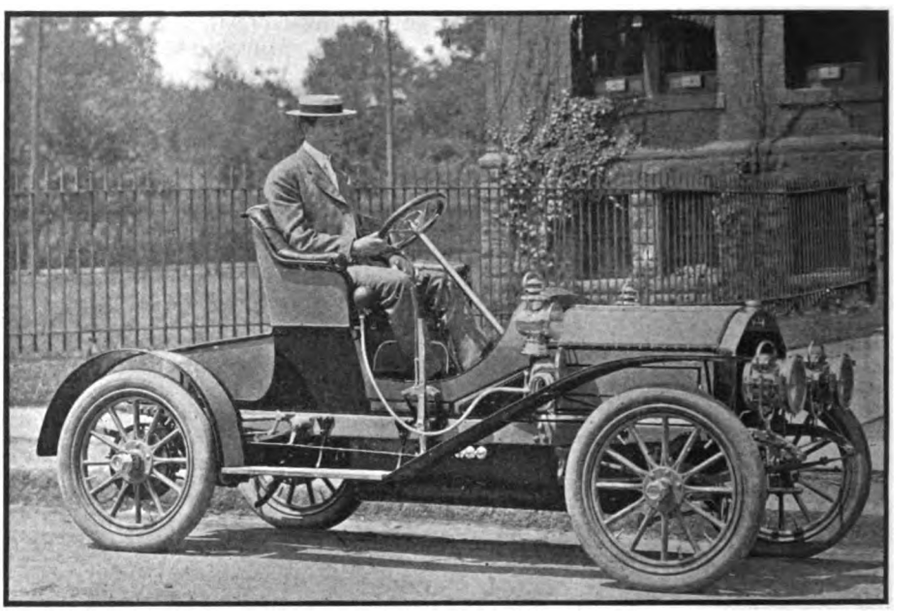
If the Screwdriver Becomes Dulled.

When the point of a screw driver becomes dulled it is not a wise plan to sharpen it on a grindstone, as a true edge is hard to secure by that means. It is more advisable to set the tool in a vise with the bevel of the point lying horizontally, and to work it down with a file, stroking it perfectly flat, until a point has been reached. Then reversing and repeating the operation a sharp edge is formed at the point with true and parallel sides. Afterward the blade may be set vertically in the vise and the point worked down until the proper thickness has been obtained.

Here's the Columbia Runabout.

One more has been added to the long line of American runabouts which, no matter how great or how small their size and capacity, yet are admitted to the classification without question. Only this week, the Electric Vehicle Company, Hartford, Conn., has announced its crowning achievement in the production of a new 24-28 horsepower runabout bearing the name Columbia, and presenting an unusually racy appearance.

The first of the class, in which President Budlong, of the company, is depicted, as here shown, displays the usual form of runabout seat supported in the rear by a sloping deck, and having a side rail rising smoothly into the combing of the concave dash. The hood is of the familiar continental pattern, while the long sloping mud guards at the front joining the short running boards, coupled with the semi-circular fenders at the rear, lend a speedy track-like appearance to the machine which is decidedly pleasing to the eye.



To Test Lubricating Oils.

Lubricating oil tests may be carried out in a simple quantitive way, or by elaborate chemical and physical processes. For the practical man the simplest tests and those bearing particularly upon the work that is to be done, are the best.

The test of greatest importance is that for viscosity, which is carried out by allowing a measured quantity of oil to flow through a fine jet and noting the time that is required. The instrument used for making such a test is known as a viscosimeter, but there are many forms of it, the best known being those of Redmond and of Engler. The greater the viscosity of an oil the higher its value. Oils are often tested in a machine in which pressure is supplied to a lubricated bearing while it is revolving at a high speed. After a certain number of revolutions the machine is stopped and the temperature of the bearing noted.

Oils showing the least rise of temperature are, of course, the best. In testing for acidity a few drops of the oil are placed on a clean sheet of brass and examined after the lapse of a fortnight. Samples that take on a green color are acid and will attack the surfaces of a bearing.

For hardening or gumming properties the oil is tested with the aid of a piece of grooved glass about four feet long. By placing one end of it about an inch higher than the other an inclined plane is formed. A drop of each of the samples to be tested is placed in a different groove and the distance travelled in a stated period, as well as the tendency to set or gum that is exhibited is the measure of the value of the oil.

Value of the Gauntlet.

There is one thing made of leather that is deserving of perpetuation, and that is the leather gauntlet. This material sprang into favor concurrently with the appearance of the automobile in numbers, but neither the leather cap nor the leather coat has ever been a thing of beauty nor much of a joy to the wearers. They led a precarious existence for some time as the badge of the professional chauffeur, but now they are fast disappearing even in that role. With the leather gauntlet it is different. It fills a legitimate niche, and will continue to do so. There is nothing that serves the purpose so well when adjustments to a hot engine are necessary, and it affords equal protection for the hands in many other ways. As material for clothing leather seems to have had its day, but in the shape of gauntlets it is destined to hold on indefinitely.

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How "the Fourth" was Celebrated in Havana.



The Fourth of July outside the confines of the land which gave it a meaning deeper than that laid down by the Julian calendar, is apt to be a dull day to the expatriated American. Yet here and there are found spots where even those who cannot claim it as truly their own, still find time to make a little noise on the great day, just out of sympathy. Not the least among these, is Cuba, which little country, patterning after its "big brother," contrives to make itself good and hoarse before the fifth has come around. Naturally, too, it is very American to infuse a little automobile into the occasion, and so they did it—this year, at least—in the big celebration held in Havana. Incidentally, it was the first celebration of the day since Cuba became a nation.

The West Indies Transportation Company, which operates a successful motor business there, was the dominating factor in the event, and three of its machines, decorated with the Cuban and American colors, played a most important part in the festivities. The two here shown, a Knox and a Maxwell, proved good drawing cards, and attracted a deal of attention. Their utility in adding color to the parade, however, was nothing to their worth in helping to impress the "American idea" upon the thousands of dusky "celebrators" of the foreign Independence Day.

Albany Club Makes Awards.

After mature deliberation, the committee in charge of the endurance run held last month by the Albany Automobile Club, has awarded the cup offered by Col. J. A. McClure, to Joseph B. Taylor, who drove a 30-35 horsepower Locomobile, and finished with a perfectly clean score. The route was from Albany to Boston by way of Keene, N. H., and return through Springfield, a distance of more than six hundred miles, which the winner made without a single stop for repairs of any sort. There were nineteen contestants in all, of whom W. L. L. Peltz, who also drove a Locomobile car, received honorable mention.

Bar Harbor Bars Motor Cars.

Bar Harbor has finally and formally decided to taboo all things automobile. And it is not so much the cussedness of the car itself that has been at stake in arriving at this momentous decision as the exclusiveness of the little Maine resort, for many of those who comprise the elite Summer Residents' Association are enthusiastic motorists themselves when in a different atmosphere. It was this body that took the first steps in looking to the exclusion of the automobile from the sacred precincts, which led to the town ordinance to the same effect. The latter forbids the use of the car on certain roads, which, from their situation, makes it equivalent to a general prohibition. It is the consensus of opinion that the narrow and preciptious roads of the island are no place for automobiles and the resort is "better off without them."

Germany in the Vanderbilt Race.

Foxhall Keene will again represent Germany in the Vanderbilt cup race and Jenatzy will once more be one of his compatriots, driving R. C. Graves's Mercedes. The third Mercedes will be owned by C. L. Charley, but who will drive it has not yet been decided.

Mankato Motorists to Assist Farmers.

The Mankato (Minn.) Automobile Club has been organized with the following officers: President, H. A. Patterson; vice-president, R. E. Brown; secretary, G. A. Lewis; treasurer, B. Bangerter, Jr.; directors, G. M. Palmer, A. R. Pfan, Sr., and C. H. Saulpaugh.

It is stated that "the first work the club will undertake will be the improvement of certain roads. The members will be assessed to raise funds and the members will assist in demonstrating to the farmers and roadmasters what may be accomplished with small expenditures or intelligent use of modern road building appliances."

One of the Tourist's Necessities.

Like a jackknife in the pocket and a pair of pliers in the tool box, a whisk broom never should be omitted from the touring equipment of the motorist who wishes to be at peace with the world.

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DISCUSSES THE DIESEL

Its Success in One Field and Failure on Automobiles—Promise of the Future.

Novices, being initiated for the first time into the mysteries of the quadruple Otto cycle, of the ordinary internal combustion engine, marvel greatly that no simpler plan of action has as yet been developed for it, and the wonderment is not in the least alleviated upon revelation of the two-cycle principle. Compared to the outward simplicity of the motor itself, its action seems to be so very complex that usually it requires several months' familiarity with its working in order to fully establish in the beginner's mind a full comprehension of just what actually takes place at each stroke. When the more learned theorist takes up the matter of its thermal performance in detail, he, too, is brought to wonder at the crudity of the machine, and to question why its efficiency is not brought nearer that which it should in the abstract be, and this, notwithstanding the fact that the internal combustion motor may be made, even in its present status, the most economical motor yet contrived for the conversion of heat into mechanical energy.

Following out this line of thought, a writer in La France Automobile questions why the Diesel motor, which has been applied with considerable success to the stationary field, has not as yet been put to the test in automobile engineering.

"Every day we are proving the boldness and inventive spirit of the constructors of automobile motors," he says. "It is, then, nothing short of remarkable that during the last ten years these experts should continually have been making motors, the principle of which has undergone no change." He then continues:

"All motors since the production of the first single cylinder patterns of De Dion, at least insofar as the cylinders themselves are concerned, work upon the four-cycle principle of Jean de Rochas. All the improvements developed have been along the line of mechanical betterments, and not a single maker has produced a motor in which a modified cycle permitted the realization of a better thermal action in the utilization of the combustible mixture. Yet it has been demonstrated with complete satisfaction that the motors used in actual practice, return an insufficient equivalent for the heat of the fuel.

"In the field of industrial motors, on the other hand, an attempt has been made to produce a thermally rational motor. The realization of this type, which is nothing more or less than a development of the theoretical formula indicated by the Carnot Cycle, has, as a matter of fact, marked an epoch in the evolution of the internal combustion motor. We refer to the happy conception of Diesel, which has been so successful that the Deisel Cycle figures in all classical studies of the subject between that of Jean de Rochas and that of Carnot, and which, furthermore, is the one upon which we draw to expound the development of the ideal thermal engine.

"A profound study of the imaginary cycle of Carnot, had been conducted by Diesel, in order to discover a means of approximating it as closely as possible in actual practice. In that way, he came to formulate this law: 'The combustible should be introduced into the cycle in such a manner that the utilization of the heat of combustion should develop in proportion to and at the same rate as its production.' In other words, that the transformation of the heat units into work should take place at the same rate, and in proportion to the production of those units. Persuing his studies still further, Diesel formulated a new law upon which as a working hypothesis, he has realized his conception. This second law says: 'The temperature of combustion should only be the result of mechanical ignition, and should not be produced by the combustion, either during or after it, but rather before it.'

"It will be seen that when Diesel referred to mechanical ignition, he contemplated a compression of the gas such that the temperature should be constant at the instant of ignition. But, on the other hand, as the compression necessary to such an operation developed a maximum temperature, it became impossible to compress a combustible mixture without firing it in the compression cylinder. Diesel avoided the difficulty by compressing only pure air, and afterward introducing the combustible gas. Needless to repeat, the first motor built, and even those which succeeded it, fell far short of the mark. Thus, where the inventor had foreseen a compression of 250 atmospheres, he realized only 35, which proved to be quite enough, and where he had planned to construct a three-cylinder compound motor, he produced but a single cylinder.

"But at all events, the Diesel conception has made its way in the industry. His motors always are distinguished by their excellent thermodynamic action, as their theory predicted. As for the cycle itself, it is distributed in the following manner:

First stroke—intake of pure air.

Second stroke—compression.

Third stroke—injection of the fuel, ignition and expansion.

Fourth stroke—exhaustion.

"Those who thoroughly comprehend the foregoing considerations in their entire bearing, are moved to wonder why it is that the constructors abandon this Diesel Cycle for that of Jean de Rochas, from which has been extracted all that could be hoped for; especially since, outside of its thermal ideality, the Diesel construction permits the feeding of the engine during the stroke and under pressure."

Despite the fact that the wroter has overlooked the very promising future which seems to be in store for the two-cycle type of motor as already applied both abroad and at home, there is beyond a shadow of doubt, a deal of success in store for the Diesel motor at least in its general application to the stationary field. For automobile work, however, it possesses the great drawback of dealing with high working pressures in the feeding system, which from its very nature places a stumbling block in the way of its successful adoption. Still another point which discounts its fitness for the work, is that whatever may be its thermal efficiency, mechanically, it cannot have great advantage over the common type of motor, because like it, it has a four-stroke cycle.

In process of time, however, the principle may be extended to cover the compound type of motor in an effective manner, which, of course, would do away with the difficulty just cited, and place it on a much better footing. The need of better economy daily is growing stronger, and the time will soon come when the better the efficiency, the greater the demand for an automobile motor, hence, the good theoretical action of the type, likely will warrant its development toward an application to the motor vehicle. At present then, it hardly seems fitted to the work, yet its equivalent is needed, and hence, it may be looked upon as a possibility. Besides, as the authority quoted above has said in substance, the Otto cycle has now been developed practically to a standstill.

Vagaries of the Fluted Reamer.

The inherent depravity of the taper-fluted reamer is so well known that special mention is not needed, says the American Machinist. It chokes and jerks out a piece of itself, or it refuses to cut or it chatters, or sticks fast. It is ground to a different angle, or it is made with an odd number of flutes, or they are irregularly spaced, and, after all, it is about as bad as ever. Sometimes it is fluted spirally with indifferent result. It will either feed itself too fast, or it will require force to make it cut, and all that. The "slickest" lubricant ever used is tallow and flake graphite thoroughly mixed. Any old, out-of-round, hand ground reamer works smoothly, and one wonders why someone didn't say so before. Speaking of reamers, it is in order to say the only way to harden a long reamer without warping is to suspend the reamer and tongs by a string twisted tight, and when the reamer is heated properly, hold it over the tube suspended perpendicularly by the string in one hand, holding it from turning with the other. When you are all ready, let go and allow it to revolve rapidly and dip at the same instant. Reamers or taps or any tool hardened this way will be practically straight.

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THAT HARD-LUCK DRIVER

Misfortune Still Pursues him and he Quits—Now his Car is Working Finely.

"Do you remember that run of ill luck that I was telling you about not long ago?" asked a prominent agent of a Motor World man the other day. "That hard luck chap who has had three cars within less than a year, and each one of them treating him worse than the last," he continued.

"The one who had trouble right from the start with his brand new touring car?"

"Yes, that's the fellow.

"Well, he is in hot water again, and clean up to the neck this time. I despise the man who is always bellowing 'I told you so,' but I tell you I didn't expect to see my prediction about him getting soured on the whole game for good come true so soon.

"No, he hasn't quite given up for good. That is, not yet, although he had firmly made up his mind to do so. Nothing but that hope which the poet says springs eternal in the human breast, and a sudden turn for the better is responsible for it.

"Well, to get to the story part. It's only about a fortnight since I told you about his tribulations before. Whether he finally got away with his party that Sunday and made the run they started on after having been delayed for three or four hours through filling up on some fluid or other that was guaranteed to be gasolene, but was not, I never found out. But during the two weeks intervening he seems to have run the car with more or less indifferent success—petty troubles all the time. He finally took the car to a local man to have something or other attended to. Whether the local man was responsible or not I have no means of finding out except his say so, but whoever tinkered with that machine certainly did a beautiful job of reassembling the lubricator leads. They were put back wrong in the first place, and what was a thousand times worse, they were fixed so all-fired well that by no possibility could any oil pass through them. Poor Mr. Owner disavows all responsibility for the job, but he had to 'pay the freight' just the same.

"He took the car out the day after the supposed corrections had been carried out, and he ran it all day. And that was until he couldn't run any further, for it gave up the ghost for good. Only the oil that happened to be in the crank case saved him from coming to a stop sooner, and it's a great wonder to me that he managed to run as long as he did. Whether it was rank carelessness on his part or whether the sight feeds worked all right and the oil went to the dickens knows where except the proper place, I have not been able to fathom. But when the engine did come to a halt she was bound hard and fast and couldn't be turned over for love or money.

"I don't suppose that anything that has ever happened during that poor fellow's entire automobiling experience has ever gone so far to confirm his opinion of the car as unfathomable box of mysteries as did that occurrence. If the time he has spent turning the crank were all added together it would make a very respectable total, but I think that was about the first time he was denied the pleasure altogether. The engine simply could not be turned over at all. Both pistons had seized hard and fast, and the entire inside of the engine was as dry as a kiln baked bone.

"No oil, explains the whole trouble in two words. The motor had continued to run until it simply could not make another turn, and then it had to stop because the pistons expanded until they bound tightly. And what would be a valuable recommendation under ordinary circumstances helped increase the damages in this instance—that is, the ability of the engine to run for a long time on very little oil. It's all right to do that occasionally when it can't be avoided, but it's bad practice. In this case it's impossible to tell how long he was running on no oil at all. And it's quite certain that the car would have been run back and put up without anything being thought of it if a stage had not been reached where natural consequences assumed the upper hand. He had to give up and take a long tow home, and his feelings on the journey may be better imagined than described.

"To make a long story short, both cylinders were ruined. By that diabolical combination of wrongs that is popularly represented by the saying 'It never rains but it pours,' the wrist pins had both worked loose and added their quota to the havoc.

"No. Wrist pins should not work loose within a month after the car leaves the factory, but where the piston is allowed to bind in such a fashion there is no telling what will happen. In all probability the piston does not take hold all around at once; one side may begin to stick a little before the other, and the resistance against the working in and out of the piston would cause that to be converted into side thrust. As long as the engine continued to turn over something had to give. That is the chief reason why it is so dangerous to continue to run an engine for any length of time after the oil has run low. Other things being in good condition the explosions will force it to turn over long after the damage has commenced.

"The faces of both cylinders were scored so badly that new ones were the only alternative. When you cut into a cylinder more than a thirty-second of an inch in the form of spirals and curleycues of all kinds, it is too much to expect the cylinder to hold its compression after that. And some of the digs in the walls of that motor must have been a full sixteenth or more in spots. That means that almost an eighth of an inch would have to be taken off if they were rebored, and it's never certain whether a cylinder will stand that much or not. Then special pistons would have to be made to fit the rebored cylinders, and, in the end, the special job would cost almost as much as an entire new engine. We had a man go down and look the car over and the replacements came to two "centuries"—nice little bill to pay for a day's ride that ended up with a tow home.

"You could hardly blame the poor fellow for thinking it was time to quit. I think almost any mortal that had gone through his experiences with cars in less than a year and then had such a thing befall him would not be human if he didn't think the turning point had been reached. He was certainly disgusted. There was no mistaking that. The old boy himself only knows what those three cars have cost that fellow in the shape of repairs and sundry disbursements brought about by having a car; they would otherwise not be called for—you know how that is. When you buy a big steam yacht you have to buy one of those blue yachting caps with the flag on it, and a wicker chair or two to put out under the awning. I don't suppose he could figure out himself how much his outlay, both direct and indirect, would come to, but it seems to me it would not be a great deal less than what the cars themselves cost.

"Well, counting that against the slim credit of fun or service he could bring to bear against it, there was a powerful balance to show, and it was on the wrong side of the books, so he decided now or never, and let it be known that his third and last car would be for sale as soon as it was in condition. We got it fixed up for him, and I never saw a car run better. Of course, during the interval that the machine was laid up his determination to quit never faltered. And he didn't weaken all at once, either. The first time he tried the car with our man there was no convincing him that she was alright. He had seen something or other go wrong so many times soon after being fixed up to take it for granted that all would be smooth sailing in the future. He was looking for something to go wrong every minute.

"Fortunately it didn't, and he has run the car a number of times since, and every time he goes out in her she seems to go better. Every ride has made him think better of giving up the pastime altogether, and if that car will only continue to run well for a month or so, he will be reconverted beyond a doubt. At least he will be won back again to an extent where it will take a good deal of hard luck to bring him down again. But if his luck goes right back on him, as it always has done, I'm very much afraid it will mark the end of his days as an automobile owner."

Back to Dobbin at last! One of the latest cars to make its bow is called the "Horseshoe," and its radiator on the end of the bonnet has been converted into a huge replica of this appendage of the equine steed that is popularly supposed to be imbued with the charm of luck.

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OILING THE CYLINDERS

The Two Systems in Vogue and Other Possibilities—Steam Engine Practice.

Cylinder lubrication in internal combustion engine design is a factor which has proved extremely difficult to master, notwithstanding the apparent success with which it is now accomplished on most motors. The conditions of extreme heat found within make the lubricants commonly applied in steam practice of little value, while even with the most satisfactory materials now used it is a recognized fact that this consideration alone requires the employment of a lower working temperature than otherwise would be necessary, and by the same token, involves the loss of a large percentage of heat. In air-cooled practice, to be sure, far higher temperatures are used than are possible with water-cooled engines, but the heat is maintained at great expense of oil, and probably with a considerable loss through the evaporation of the oil. This loss, although partially returned in the heat of combustion of that portion which actually is burned, is by no means compensated for in this manner.

The inherent difficulties to be overcome are largely mechanical in their nature. That is to say, whatever the method of distribution employed, the oil must be spread over the walls by the action of the piston. There, in the form of a thin film it is exposed to all the heat of the burning gas, and is partially consumed; the residue of half-burned oil and carbon deposite being divided between the entire combustion space and the walls themselves which it tends to gum. As a result of this action, the supply must be renewed at each stroke of the piston, and the amount required to perform the work demanded from this fact becomes considerably greater than would be the case were the abrasive action of the piston alone to be considered.

The products of combustion of the fractional quantity of lubricant burned simply go to waste through the exhaust if the proper grade of oil be employed, having but little effect upon the surfaces with which it comes in contact in passage. If an improper grade be employed, these surfaces, walls, valve seats and ports soon become coated with particles of carbon deposit which coke into them and ultimately cause trouble in various well known ways. With an excessive use of the lubricant, of course, this action is more marked than when just the proper amount is employed, but even with the ideal rate of supply there must apparently be a certain amount of oil burning action during each working stroke.

Thus, it will be seen that the theory of cylinder lubrication naturally divides itself into two main considerations, the first being the essential of distributing the lubricant over the walls in an even layer at each stroke, and the second that of so proportioning the quantity and quality of the material that the amount of oil combustion shall be as small as possible. The first, being merely mechanical, is to all intents and purposes solved satisfactorily, according to present usage, at least, by the splash system, the distribution obtained in this way being uniformly even. The second consideration is by no means so well served by this method, however, since the quantity cannot be regulated with all the nicety that could be desired, the result being that a slight surplus must be maintained at all times to insure the correct amount.

Despite the general efficacy with which this method is applied to motors of the present day, its admitted drawbacks are numerous, and it is evident that were some more satisfactory system to be devised, it would at once meet with favorable recognition. That being the case, it is worth while to consider a suggestion which recently has been made, resulting in considerable newspaper controversy abroad, and which apparently is based upon well grounded tests. In a word, this suggestion is that the general method adopted with steam engines be employed, the lubricant being introduced into the cylinder in an entrained state with the gas. In steam practice this works to good advantage, the mechanical distribution effected by the steam carrying the entrained oil being perfect. The distribution in this case is produced by the superior inertia of the oil, which causes it to be thrown violently against the surfaces with which it comes in contact, the lighter particles of steam rebounding, as it were, and leaving the oil spread in a thin film of ideal uniformity upon the parts where it is most in demand. The quantity, of course, may be regulated to a fine degree, and in every way the method serves its purpose idealy.

On first thought, the idea of applying this method to gas engine practice would appear to be disputed by the heat action. Yet, when it is considered that the gas is drawn in at one stroke, compressed, and not fired until the third stroke from the time of induction, it appears that there would be abundant opportunity for the entrained oil to settle upon the walls before the period of extreme temperature had been reached. Supposing this to be possible, it certainly must be true that the distribution could be uniformly effected, and that the quantity could be regulated to a finer degree than is possible with the present method. As to the possible effect of a surplus of lubricant remaining mixed with the gas at the time of ignition, it is evident that the fact that it would be suspended in the combustion chamber and not directly in contact with the walls, except in a limited way, would simply make it serve as an additional element in the combustible material of the gas, possibly requiring a greater temperature of ignition, possibly not, but certainly adding to the effective pressure secured from the burning action without direct effect upon the passages such as would be caused were it to be burned in absolute contact with them.

As to the actual possibility of the system, it has been tried with considerable success by an English investigator, who secured the desired effect by mixing about 30 per cent of kerosene with the fuel in the tank, letting the natural flow of the mixture take care of all the details. The motor to which the method was applied was one of low compression, to be sure—only about 65 pounds, or thereabouts—and being of the horizontal type, it is not likely that high speeds or extraordinary ignition temperatures were attained in service, yet the success of the system even in this elementary way goes to prove that a possibility of applying it under certain circumstances exists. Furthermore, in this country, the inventor of a novel type of two-cycle motor has applied the same idea, using a thin lubricating oil and mixing it with the gasolene in small proportions, not enough oil being used to interfere with the ordinary functioning of the carburetter, but still enough to secure the desired effect in the cylinders.

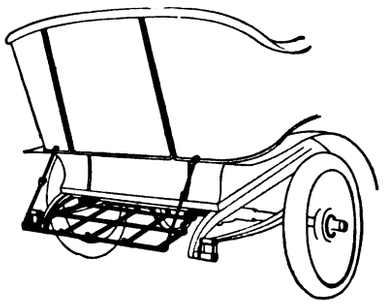
Were such a method possible, the problem of cylinder lubrication on high speed motors and those employing high compression would be well taken care of, and the designer's troubles would dwindle visibly. For, in the first place, the need of maintaining the oil level in the crank case at an even and determinate height would disappear; second, the most important use of the mechanical oiler would be transferred to the carburetter, and by that token the need of constant attention, and the equally insistant demand for continuous service in oiling the cylinders would be taken care of, while, third, the need of a feed varying in proportion to the speed of the motor would be met by the varying quantity of gas drawn into the cylinders, and the fact that the proportion of entrained lubricant which it carried would be constant.

Such a method may or may not be within the bounds of possibility as a commercial success on motors of all types; even were it so its application would not be a simple matter. Prominent among the difficulties to be met in applying it would be the securing of a suitable grade of oil and the determination of the correct proportion to be infused into the fuel tank. In a general way, however, despite its apparent impracticability because of the high temperature to be contended with, it looks feasible, and that being the case, it well may be considered as good food for thought and experimentation during this, the season of design.

A foreign maker has this season adopted the practice of inserting bronze bushings into the looped ends of the springs of his cars, thus providing a steel to bronze contact for the action of the shackles, and at the same time furnishing means for renewal of the bearings without the necessity of drilling out and fitting larger shackle pins—always a doubtful if not almost impossible task, and thus insuring better working of the suspension.

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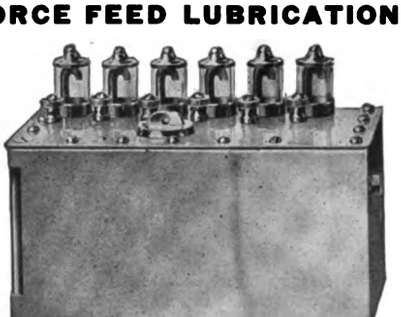
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WILL sell my 35 H. P. French car for $3,000.00 including folding top, extra tire and holder, trunk rack, etc Advice on application. J. F. BROWN, Boyce Bldg., Chicago, Ill

WANTED—To hear from a first-class factory superintendent who wishes to make a change, by an automobile motor manufacturing company. Want a live, clean, up-to-date man familiar with modern machine tools and methods. All work done with special tools and jigs. Must know how to handle men and be a producer of quantity as well as quality. Experience with motors not essential but preferred. Want a hustler. Plant located in Michigan. State age, present employment, salary wanted, references and full particulars. A permanent, steady position for man who has above qualifications and who can "make good" Must commence not later than September first All replies treated in confidence. Address "MOTOR," care Motor World.

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The Week's Patents.

824,747. Motor-Vehicle Running Gear. Charles Schmidt, Detroit, Mich., assignor to Packard Motor Car Company, Detroit, Mich., a corporation of West Virginia. Filed Nov. 5, 1904. Serial No. 231,571.

Claim.—1. In a motor-vehicle, the combination, with the rear axle and the gear-case arranged at the rear axle, of the main frame, a semi-elliptical spring depending from said main frame and arranged longitudinally of the vehicle, and a forwardly-extending arm rigidly connected with said gear-case and having its free end connected with said spring, for the purpose set forth.

824,772. Vehicle-Wheel. John A. Yarger, Nashua, Iowa. Filed Aug. 21, 1905. Serial No. 275,044.

Claim.—1. In a vehicle-wheel, a hollow hub, a pneumatic cushion in the hub, a ring supported by the cushion, means for protecting the cushion, spokes carried by the ring, a felly carried by the spokes and yielding braces extending from the felly to the hub.

824,778. Cushion-Tire. Julian C. Burdick, Jr., Flushing, N. Y. Filed Aug. 24, 1905. Serial No. 275,694.

Claim.—1. A wheel-tire comprising a plurality of sections having interlocking abutting faces so shaped as to resist relative longitudinal movement of the sections.

824,809. Lubricator. Lester D. Pickett, Fredonia, N. Y. Filed Sept. 14, 1905. Serial No. 278,465.

Claim.—1. The combination with an internal-combustion engine, of a lubricator connected thereto, means for regulating the speed of the engine, and mechanism connected to the speed-regulating means for governing the quantity of lubricant fed from the lubricator at each stroke of the engine.

824,819. Ball-Bearing. Angust Riebe, Berlin, Germany. Filed July 13, 1905. Serial No. 269,488.

Claim.—1. In a ball-bearing, a distance-piece between adjacent balls comprising a spring, end plates inclosing said spring and means for holding said end plates parallel to each other while permitting movement thereof toward and from each other.

824,820. Ball-Bearing. August Riebe, Berlin, Germany. Filed Nov. 6, 1905. Serial No. 286,026.

Claim.—1. In compressible partition devices for ball-bearings, means for limiting the compression sufficiently to prevent the removal of such devices, said means being attachable to and detachable from the device.

824,828. Secondary-Battery Plate. William L. Silvey, Dayton, Ohio. Filed Mar. 5, 1906. Serial No. 304,364.

Claim.—1. In a secondary battery a perforated battery-plate consisting of two lead plates having holes in them larger on the outside, perforated metal cups fitted into the holes in the perforated lead plates, the perforated lead plates fastened together forming perforated cavities for active material, and connecting-ears on the plate for connecting it to an external circuit as set forth.

824,844. Elastic Tire. Alfred W. Carpenter, London, England. Filed Nov. 27, 1905. Serial No. 289,294.

Claim.—1. A tire for vehicle-wheels having a resilient body composed of layers of coiled elastic cord, substantially as hereinbefore described.

824,847. Ball-Bearing. Robert Conrad, Berlin, Germany. Filed May 10, 1904. Serial No. 207,217.

Claim.—1. In ball-bearings in combination, two parts having running-surfaces, one of said parts having a filling aperture serving for the introduction of balls, and ball-separating devices connected serially to each other and adapted to be introduced through said aperture.

824,892. Wheel. John C. Wands, St. Louis, Mo. Filed Dec. 26, 1905. Serial No. 293,283.

Claim.—1. A wheel comprising a hub, spokes and an inner rim connected to said spokes, a felly-rim of approximately channel shape to receive a tread, co-operating lips carried by said rims, coiled springs arranged alternately in opposite directions and connected at one end to screw-threaded projections formed integral with the lops of the felly-rim, and devices co-operating with said projections and provided with screw-threaded portions to receive the opposite ends of said springs, said devices being adapted to be removably connected to the lips on the inner rim; substantially as described.

824,936. Explosive-Engine. Martin C. Kessler, Denver, Colo., assignor to The Kessler Motor Company, Denver, Colo. Filed Sept. 24, 1904. Serial No. 225,774.

Claim.—1. In an explosive-engine, the combination with a cylinder and piston, of two auxiliary chambers separated from the cylinder chamber but in communication with both extremeties of the latter by suitable passages, valves for controlling said passages, means for igniting the explosive mixture in the auxiliary chambers, and means for opening the valves to allow the explosive force to pass to the cylinder-chamber from one of the auxiliary chambers simultaneously with the passage of the explosive mixture from the cylinder-chamber to the other auxiliary chamber, the valves for admitting explosive force from the auxiliary chambers to the cylinder being independent of the means for regulating the ignition of the explosive mixture in the auxiliary chambers, whereby the time relation between the ignition of the gases in the auxiliary chambers and the admission of the explosive forces therefrom to the cylinder may be varied at will.

825,010. Muffler. Benjamin W. Snow, Syracuse, N. Y. Filed Dec. 27, 1905. Serial No. 293,498.

Claim.—1. A muffler for gas or steam engines comprising a cylindrical casing having removable end heads, each provided with a substantially central opening, one being the inlet and the other the outlet and the outlet being of less diameter than the interior diameter of the casing, a series of circular disks spaced gradually-increasing distances apart from the inlet toward the outlet and of substantially the same diameter as the interior diameter of the case, clamping-bolts passed through the disks and engaged with the heads of the casing, and spacing-sleeves on said bolts holding the disks apart.

824,942. Variable-Speed Mechanism. Edward Manrara and William D. Custead, New York, N. Y. Filed Jan. 11, 1905. Serial No. 240,523.

Claim.—1. The combination of a shaft, a wheel fast on the shaft and provided with a rim having inner and outer friction-faces concentric with the shaft, an arm having a continuous cylindrical bore in one end, and having an abutment arranged to engage the inner surface of said rim, the arm being movable on said abutment to shift the axis of said bore toward and from the axis of said shaft, a bearing-block carried by the arm and engaging the outer face of the rim, a sector arranged to oscillate in the bore of the arm, means for yieldably retaining the arc face of the sector in engagement with one side of the bore of the arm, and means for shifting said latter means whereby the sector is yieldably retained in engagement with the side of such bore opposite to said side.

825,075. Speed-Indicator for Motor Cars and Other Vehicles. Richard M. Ruck, London, England. Filed Nov. 25, 1905. Serial No. 288,715.

Claim.—1. The combination with a speed-indicator for motor-cars and other vehicles consisting essentially of clock-driven and car-driven indices mounted concentrically with one another and rotated at velocities which are respectively constant and proportional to the speed at which the vehicle is traveling, of an auxiliary index mounted concentrically with said indices and adapted to be temporarily engaged with the car-driven index so as to be caused to move as one therewith, with scales over which the clock-driven and auxiliary indices are respectively movable, and which are so graduated that the amplitude of the movement performed by the auxiliary index while the clock-driven index rotates through a predetermined angle will represent the speed at which the vehicle is traveling, substantially as specified.

825,083. Shock-Absorber for Spring-Vehicles. George E. Shippey, Pittsfield, Mass. Filed Nov. 8, 1905. Serial No. 286,414.

Claim.—1. In a vehicle, comprising a progressive under-body and a superimposed part movably supported thereon, mechanical means providing a retarding effect upon the vertical movements of the said superimposed part; said means comprising rollers adapted to compress intercepting resilient springs moving relatively thereto.

825,206. Adjusting Means for the Clutch Mechanisms of Automobiles. David F. Graham, Middletown, Conn., assignor to The Eisenhuth Horseless Vehicle Company, Middletown, Conn., a corporation of Maine. Filed July 20, 1905. Serial No. 270,501.

Claim.—1. As an improvement in adjusting means for clutch mechanisms of the class described, the clutch-shoes, mechanism for operating and adjusting the clutch-shoes, a rod operatively engaging said mechanism, means for reciprocating the rod to actuate said operating mechanism, and means for turning or rotating said rod to cause the adjustment action of said mechanism.

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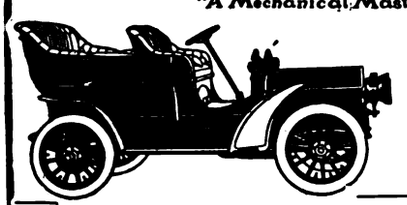
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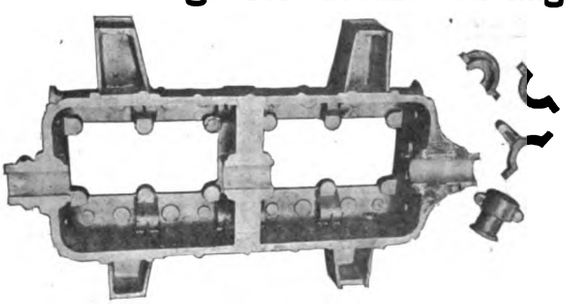


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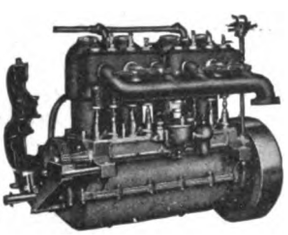
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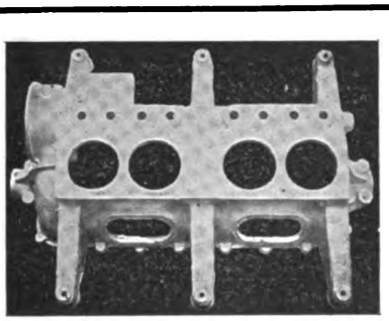
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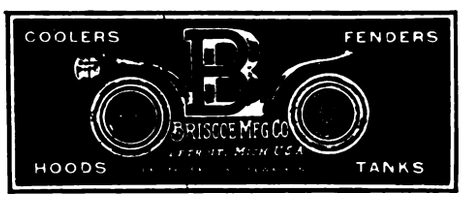
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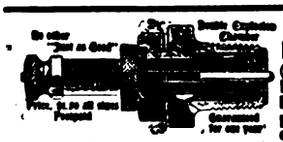
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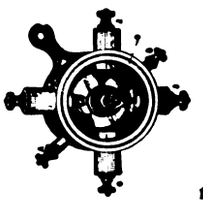


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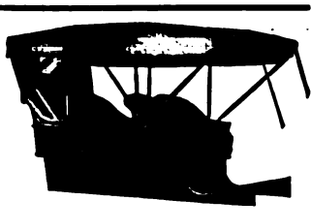
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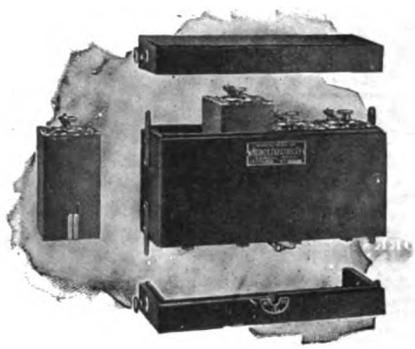
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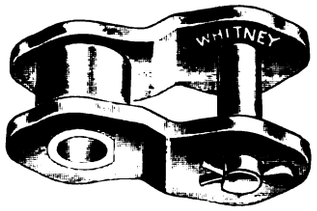
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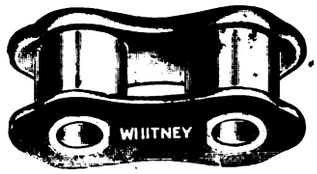
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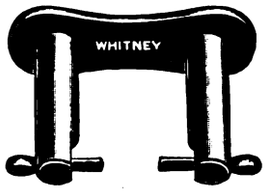
Connecting Link



OFFSET LINK



Assembled Center Block

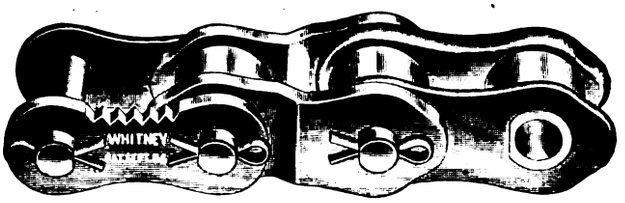


Side Link with Rivets Assembled



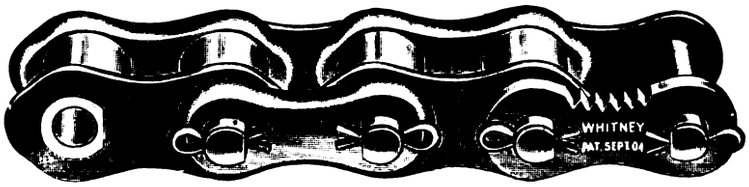
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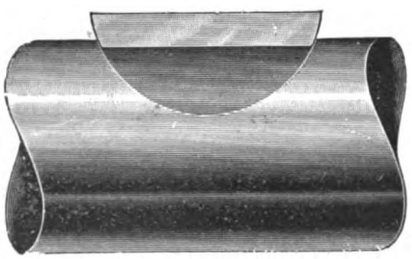
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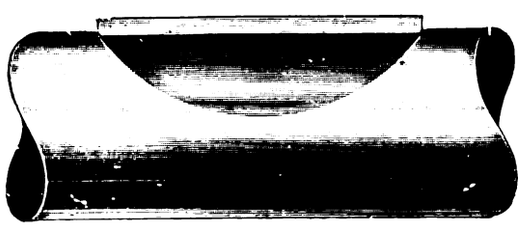


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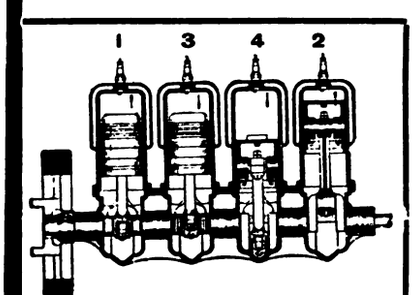
In the recent endurance run from Los Angeles to Riverside and return, three ELMORE Two-cycle cars gave most conclusive proofs of their quality.

ELMORE owned by Edwin K. Alpaugh and driven by Wren Burnwood, carrying five people, made 1000 POINTS—***a perfect score.***

ELMORE owned and driven by C. S. Anthony, carrying five people, finished with 999 points out of a possible 1000.

ELMORE owned by J. H. Wood and driven by A. J. Smith, carrying five people, received 998 points out of a possible 1000.

You'll want to know more about this famous car, which made so notable a showing.



Write to-day for complete information.

Model 15, Four Cylinder, Two-cycle Elmore, $2,500.

THE ELMORE MANUFACTURING COMPANY,

1104 Amanda Street, CLYDE, OHIO.

Member Association of Licensed Automobile Manufacturers.

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TO SELLERS AND USERS

OF

CLINCHER TIRES

We have commenced and are vigorously prosecuting suits for infringement of our patents against the Pennsylvania Rubber Company and the Michelin Tire American Agency, Inc., on account of the sale of Clincher tires.

The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J Patents:

G & J Tire Co.
Hartford Rubber Works Co.
Morgan & Wright.
B. F. Goodrich Co.
Diamond Rubber Co.
Goodyear Tire & Rubber Co.
Fisk Rubber Co.
International Automobile & Vehicle Tire Co.
Continental Caoutchouc Co.

G & J TIRE CO.

Indianapolis, Ind.

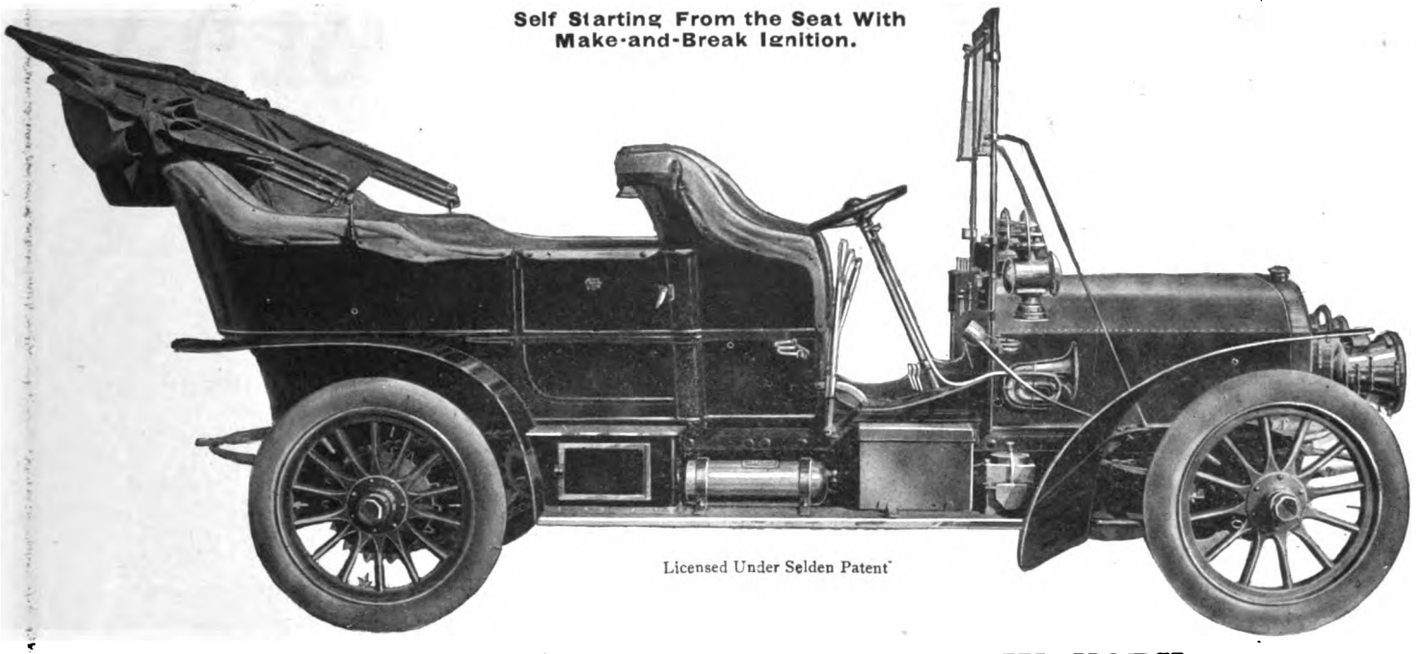
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CHROME-NICKEL STEEL used throughout in construction of shafts, transmission and gears

"Matheson"

HESS-BRIGHT IMPORTED — ball-bearings secure perfect transmission of power from engine to wheel.

Self Starting From the Seat With Make-and-Break Ignition.



Licensed Under Selden Patent

THE MATHESON COMPANY OF NEW YORK,

FACTORY, WILKES-BARRE, PA. — 1619 BROADWAY, near 49th Street. — ONE YEAR GUARANTY.

THE

THOMAS FLYER

gathers in the Fifty-Mile World's Record



At Hawthorne Race Track on July 3rd a stock **"Thomas Flyer"** won the fifty-mile competition, making the record-breaking time of one hour, six minutes and nineteen seconds.

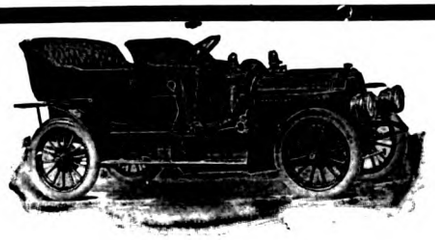
Every other car in the race was clearly and squarely out-classed.

Write to-day for detailed description of the 50 H. P. Thomas Flyer.

The E. R. Thomas Motor Co.,

1416 Niagara St., Buffalo, N. Y.

Members Association of Licensed Automobile Manufacturers.



WHY IS THE

ROYAL TOURIST

FAMOUS?

ASK AN OWNER.

ROYAL

Model G. $3500.00 40 H. P.

THE ROYAL MOTOR CAR CO.

Cleveland, Ohio.

AGENTS: C. A. DUERR & CO., New York, N. Y.; G. J. DUNHAM, Boston, Mass.; THE McDUFFEE AUTOMOBILE CO., Chicago, Ill.; G. W. CAPLIN, Minneapolis, Minn.; AUTOMOBILE & SUPPLY CO., Lim., Toronto, Ont.; MOTOR SHOP, Philadelphia, Pa.; REYBURN MOTOR CAR CO., St. Louis, Mo.; STANDARD AUTOMOBILE CO., Pittsburg, Pa.; AMOS-PIERCE AUTO CO., Syracuse, N. Y.; SCHOEFFEL CO., Rochester, N. Y.; ROYAL MOTOR CAR AGENCY, San Francisco, Cal.

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TRADE MARKS.

The George N. Pierce Company.

Makers of

Pierce Cycles

Pierce Stanhope and Arrow Motor Cars.

Established 1865 Incorporated 1901

PIERCE STANHOPE TRIED AND TRUE MOTOR CAR

The B F Goodrich Company
Akron Ohio

London England June 26th 1906

Dear Sirs

I take pleasure in certifying that I used the "Goodrich" make of clincher tires on the Pierce "Arrow" car entered in the Herkomer Contest the most important event of its kind in Europe And further testify that the tires did not require any attention throughout the said Contest not having been pumped up after the first time they were put on the machine although the car run a considerable distance before the Contest started Judging from what we saw along the roads of trouble other people were in with their tires I think I was to be congratulated on the choice of "Goodrich tires for this event Furthermore as far as I know this was the only make of tire that went through the entire Contest without having a pump put to them This was really the first time that "Goodrich" tires were used on the continent and not only caused a great deal of surprise but towards the end of the Contest a great deal of wonder at the way in which they stood the test of stony roads and the very few and slight scars they showed from the journey

Yours very truly Percy P. Pierce

Goodrich Tires

invade European soil in the celebrated Herkomer automobile contest and win for American skill the highest praise.

They stood the test—in fact the only tires in the contest not touched for repairs or inflation.

THE B. F. GOODRICH COMPANY, - - - - Akron, Ohio.

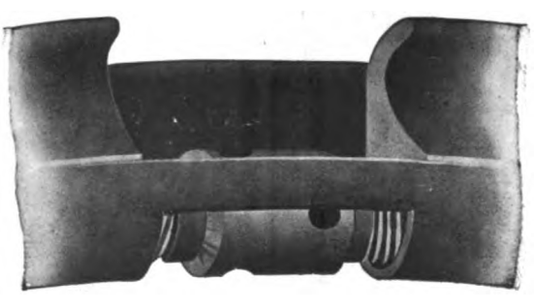
Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

NEW YORK—66-68 Reade St. & 1625 Broadway. OAKLAND, CALIF.—Fourth & Washington Sts.
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BUFFALO—731 Main St. DETROIT—80 E. Congress St.
DENVER—1444 Curtis St. ST. LOUIS—3926-28 Olive St.
LONDON, E. C., 7 Snow Hill.

Pieneer Steel Wheel and Universal Rim Manufacturers of the World

Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

Sele Makers of the HARTFORD UNIVERSAL RIM for DUNLOP AND CLINCHER TIRES



MIDGLEY MANUFACTURING COMPANY, - - Columbus, Ohio.

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Contestants in Class III.

Price	Name	Time
$1800	Mitchell	0:43½
$2250	Olds	0:43¾
$2500	Ford	0:44¾
$2500	Ford	0:45½
$2800	Franklin	0:51¾
$2500	Rambler	0:51¾
$2000	Queen	0 52½
$2250	Olds	0:52¾
$3000	National	0:54
$3000	Frayer-Miller	0:54¾
$1800	Franklin	0:59½
$3000	Marmon	0:59¾

Besting also the following in Class IV.

$4000	Thomas	0:45
$3500	Royal	0:46
$3500	Thomas	0:59¼

And the following in Class V.

$3500	Royal	0:47

Wherever the Mitchell Tries, It Wins

THE MINNEAPOLIS

Mitchell Automobile Won Prize Cup for Hill Climbing

It Is a Handsome Affair, Donated by Leopold Metzger of S. Jacobs & Co.—Now on Exhibition at Garage of Auto Construction Company.



Mitchell car that won the fine cup made by Jacobs, in the recent auto hill climbing contest.

The 30-horse power Mitchell automobile created an enviable record for itself when it crossed the tape in the hill climbing contest at the Riverside hill driveway in 43½ seconds, thus winning the finest valuable motoring trophy ever offered in an automobile contest in the Northwest.

The course is 2,000 feet in length, and has a rise of 76 feet. It contains one hard turn and presents several minor inequalities, but the roadbed on the day of the contest was firm and dry, offering the drivers an excellent opportunity to demonstrate the worth of their respective machines.

With the exception of the class in which the stripped and freak cars were allowed to enter, the chief interest was undoubtedly centered in Class 3, as it was in this class that the higher priced and popular cars were running. Considerable rivalry had been existing among most of the dealers and owners, and, as had been predicted, the finishes were close and exciting, with the Mitchell winning out by the mere fraction of a second.

It sailed up the incline in a beautiful manner, with the driver and his assistant leaning far forward in order to afford the least resistance to the wind. Their run was the best of the day, with the probable exception of that made by the little steamer which set a new record for the hill.

The $1,800 car made unusually good showing in competition with its $2,500 and $3,000 rivals.

Considerable credit for the excellent record made by the Mitchell must be given to the daring and skillful manipulation of the levers and wheel, for had not the driver been perfectly cool and well able to handle his car, disastrous results might have been expected. Earnest Simpson, who brought the car successfully over the hill a week ago Saturday, has plenty of nerve as well as skill, and will drive the Mitchell in all future speed contests.

C. C. Evans, of the Auto Construction Co., the owner of the machine in question, is now exhibiting to his friends the handsome trophy cup which he won in the hill climb. It is without doubt one of the most beautiful cups ever offered for any automobile race in the Northwest.

It was donated by Leopold Metzger of S. Jacobs & Co., jewelers, 518 Nicollet avenue. Resting on a pure ebony base, it stands two feet high, is made of solid sterling silver, and is lined with a thin covering of gold. It is adorned with a miniature automobile at the top, while a decidedly effective finish is given by three large handles each with a mercury wheel at its base. It is on exhibition at the Auto Construction Co.'s Garage, 1401 Hennepin avenue.

WE HAVE been so busy trying to get out cars enough to fill our orders that we have not had time to engage in the races, hill-climbing contests, etc., which are continually being pulled off.

It is a peculiar and very significant fact, however, that whenever the MITCHELL has tried it has WON, beating out cars at often DOUBLE the price.

What will happen if we ever have time enough to follow the lead of others, make up special cars and "go after" these records instead of picking them up incidentally here and there with stock cars is a matter of conjecture.

Our customers say that no matter what test is given the Mitchell, it has a most gratifying habit of "making good."

Our handsome Art Catalogue (price 10c) will tell you about the Touring Car at $1800 which has made dozens in the $3000 to $5000 class look foolish. Write for it.

Mitchell Motor Car Co.

104 Mitchell Street, Racine, Wis.

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Mr. J. P. Schneider, of Detroit, who drove an

OLDSMOBILE

Palace Touring Car on the first Century Run of the Detroit Automobile Club made a **perfect score** and is enthusiastic in his praise of his cars performance.

In every part of the country the Oldsmobile Palace Touring Car (Model S, Price $2,250) is proving itself the **success of the year.** It's essentially a car of performance—a car that does things and does them in a way to give the greatest satisfaction to its owrer.

Send 10 two-cent stamps for "A Busy Man's Text Book on Automobiles." Address Dept. K.

OLDS MOTOR WORKS, Lansing, Mich, U. S. A.

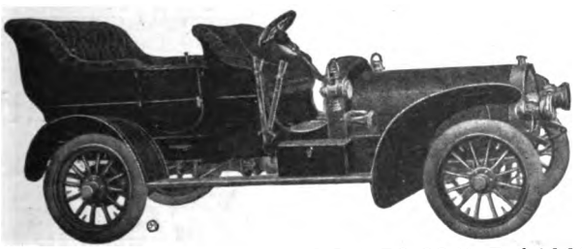
Member A. L. A. M.

Canadian trade supplied from the Canadian Factory, PACKARD ELECTRIC CO., Ltd., St Catharines, Ont

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National

WORLD'S RECORDS
FOR
1000 Miles and 1094 3/16 Miles in 24 Hours
Made Nov. 17th, 1905
STILL STANDS UNEQUALLED.



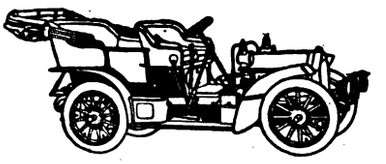
4 Cyl. 35-40 H. P. $3000. 6 Cyl. 50-60 H. P. $4000.

NATIONAL RELIABILITY AND ENDURANCE ARE HARD TO BEAT.

Write for Particulars.

National Motor Vehicle Co.
1007 E. 22d STREET,
Indianapolis, Ind.

• *Member American Motor Car Manufacturers' Association, N. Y.* •



Our catalogue omits generalities. Dwells on the specific points in which the automobilist is interested.

Locomobile

COMPANY OF AMERICA
BRIDGEPORT, CONN.
Member A. L. A. M.

Whitlock Coolers
FOR 1907

WIL L BE THE STANDARD FOR HIGH-GRADE CARS

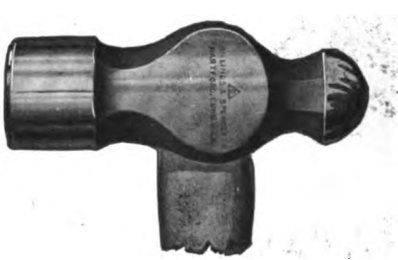
Do not waste time and money on experiments.

If prompt deliveries appeal to you, you will be interested to know that we already have **the** largest factory in America engaged in manufacturing cellular coolers, and that we are now erecting a second and larger building which will more than double our present capacity.

In addition to cellular coolers, we make **disc radiators** of several types, **hoods, exhaust** and **inlet pipes** and **headers, muffler** pipes and bent and brazed work of every description for automobiles.

THE WHITLOOK COIL PIPE COMPANY,
HARTFORD, CONN.

FOR YOUR AUTO KIT.
The "B. & S." Ball Pein
HAMMER
Drop-Forged of Special Steel.
Hickory Handles.



The Hammer that will stand the racket of all-around usage on your car or in your garage.

THE BILLINGS & SPENCER CO., Hartford, Conn.

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SOMETHING'S WRONG



and the question is to find it. The Veeder Odometer readings show that it is taking half as much gasoline again to run the car 100 miles as it did a month ago. That means lack of lubrication somewhere or faulty engine operation. Anyway, it's serious, and it's lucky the Veeder Odometer readings showed it. A Veeder is a mighty valuable instrument on a car.

"It's nice to know
How far you go."

—*Veeder Odometers.*

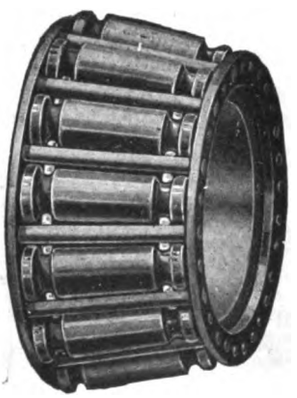
THE VEEDER MFG. CO., 26 Sargeant St., Hartford, Conn.

Makers of Cyclometers, Odometers, Tachometers, Tachodometers, Counters and Fine Castings.

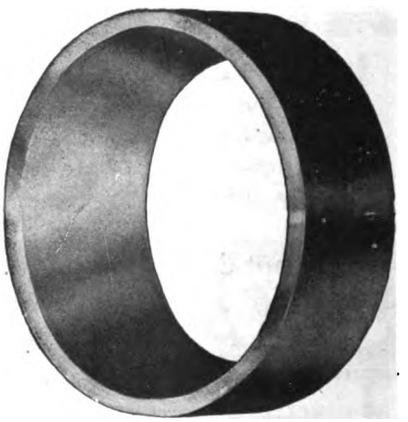
INCREASES THE POWER; REDUCES THE STRAIN



Cone.



Cone and Rollers.



Cup.

THOSE ARE TWO OF THE LARGE PURPOSES WHICH ARE SERVED BY

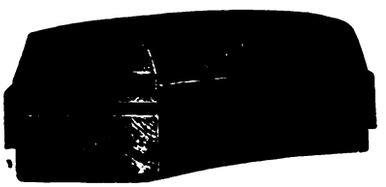
TIMKEN ROLLER BEARINGS

They are such far-reaching purposes as to induce every person about to purchase a car, to discover whether those bearings are applied to it; and if not, why not.

TIMKEN ROLLER BEARING AXLE CO., - - - Canton, Ohio.

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¶The longer a lever, the greater its leverage.
¶That's self evident, and it is another strong reason why



Diamond
WIRE MESH BASE TIRES

ARE BEST for MOTOR TRUCKS and COMMERCIAL CARS.

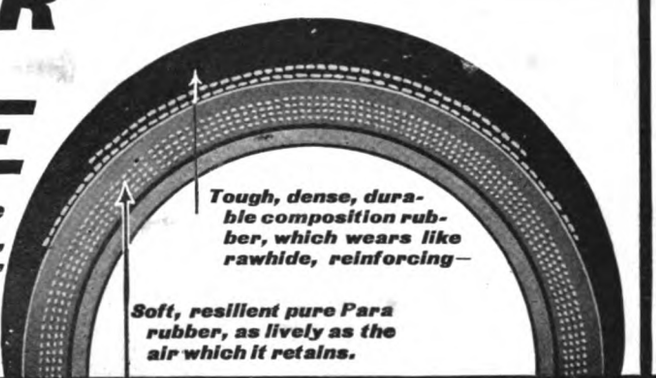
¶They offer minimum leverage for side strains.
¶When a motor truck is equipped with a high, buggy-tire-shaped tire, there is a terrific side strain on the rubber and fastening device, whenever the vehicle attempts to make even the slightest turn.
¶The higher the tire the greater the strain, and it is small wonder that buggy-tire-shaped tires are not satisfactory equipment for heavy trucks, but are wrenched loose after short service.
¶Note the broad, low tread of the Wire Mesh Base Tire.
¶It offers almost no leverage at all, for side strains. Therefore, it is secure.
¶Scientific—and delivers the distance at low cost per ton-mile.

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

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The GOODYEAR
Detachable
AUTO-TIRE

Is "wrapped tread" construction. The soft, resilient Para Rubber and the tough, dense composition rubber are "wrapped" together and vulcanized into an inseparable whole. This gives a tire which is



90% Puncture Proof

almost as durable as a Solid Tire, and as Resilient as the liveliest. Call at the factory or any of the following branches and let us demonstrate.

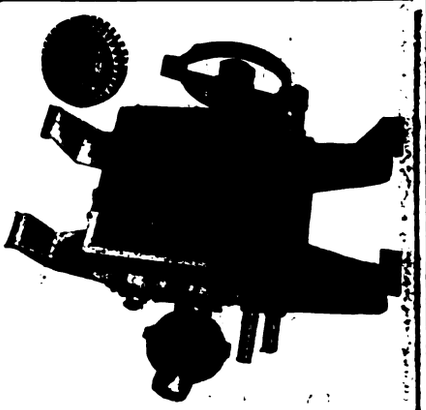


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NEW YORK, cor. Sixty-fourth St. and Broadway.
CHICAGO, 82-84 Michigan Ave.
CINCINNATI, 242 E. Fifth St.
ST. LOUIS, 712-714 Morgan St.
OAKLAND, Geo. P. Moore & Co., 377 10th St.
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The Goodyear Tire and Rubber Company
Grove Street, Akron, Ohio.

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HAYNES TRANSMISSION



In the ordinary types of transmission where a change is made from high gear at 30 miles per hour, with a 2,750 pound car and a normal load, to 15 miles per hour on middle gear, the shock to the mechanism is equivalent to a verticle fall of 7 feet.

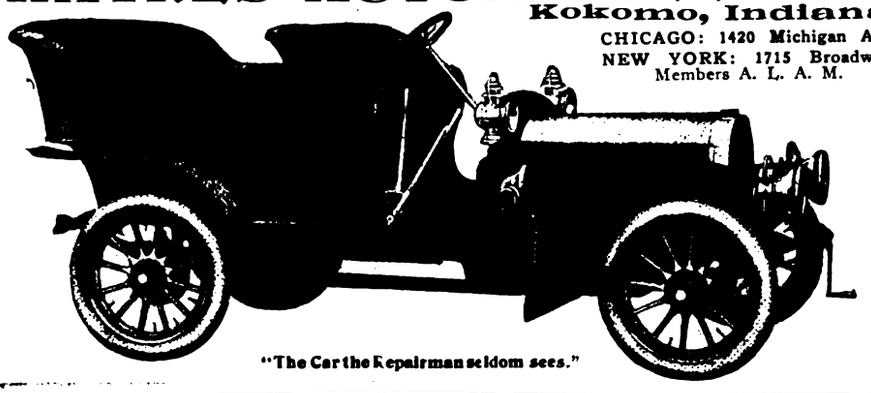
The Haynes Transmission assures ease and perfect safety in operation and entirely prevents the violent shock that would ordinarily be caused by changing from high to a lower gear.

In the hub of the Master Gear is a ratchet and pawl device which permits the car to coast with middle or low gear engaged until the speed of the car and engine are equal, when the pawls engage and the engines take up the load. Change may be made from high to middle or low gear without any possibility of burring or stripping the gears.

The Haynes is the Highest-Powered Shaft-Driven Car Built. In requesting Catalogue, for prompt attention address Desk D 24.

HAYNES AUTOMOBILE CO.
Kokomo, Indiana.

CHICAGO: 1420 Michigan Ave.
NEW YORK: 1715 Broadway.
Members A. L. A. M.



"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5¼x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,500 f. o. b. Kokomo. Full equipment.

Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs 4¼x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.

POWER

At this stage of automobile development, the power transmission by chain is most popular.
Properly cut sprockets, and the best and strongest chain in the world.

THE BRAMPTON



Which is made of self-haidening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

The matter of repairs and replacements is simple.

YOUR CHOICE.

The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars. **Special chains to fit Indian motorcycle.**

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Motor Car Tires

Perfect in Material and Workmanship,

Handsome in Appearance.

Made with OVAL RAISED TREAD, giving added wearing surface and proper road contact.

Provided with BREAKER STRIPS to resist severe shocks.

Fitted with a tough, pliable cushion of rubber next the fabric, relieving it from the force of heavy blows.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

Write us for Catalogue.

G & J TIRE CO.
Indianapolis.

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Chicago Buffalo Detroit Cleveland
Boston Denver Oakland, Calif., 401 12th St.
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Distributing Agents:
Plant Bros., Minneapolis
Keats & Co., Portland, Or.
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The Incomparable
WHITE
The Car for Service.



THE CHOICE OF THE WELL-INFORMED.

No man is better fitted to judge of the relative merits of the various makes of cars and to judge intelligently between them than Thomas A. Edison, the foremost mechanical genius of the age.

Prospective purchasers of automobiles who have trouble in deciding "Which is the best make of car," should note that Mr. Edison uses White steamers exclusively in his touring.

The above illustration shows Mr. Edison and his two Whites during his recent six-weeks' tour through the southern States.

Write for literature describing six years of White success.

WHITE SEWING MACHINE COMPANY
CLEVELAND, OHIO

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Columbia

AUTOMOBILES

Are completely illustrated and described in THREE CATALOGUES devoted respectively to GASOLINE CARS (18 H. P., 24-28 H. P., 40-45 H.P.,) ELECTRIC CARRIAGES (Runabouts, Victoria-Phaetons Surreys, Broughams, Hansoms, Landaulets, Busses) and ELECTRIC COMMERCIAL VEHICLES (delivery wagons and trucks, ranging in load capacity from 1,000 to 10,000 pounds.)

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WASHINGTON—Washington E. V. Transportation Co., 15th & Ohio Ave.
Members Association of Licensed Automobile Manufacturers.

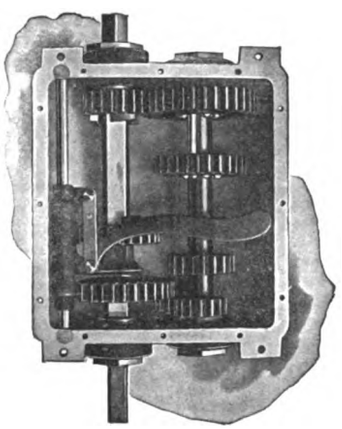
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Mechanically Fastened Pneumatics

have marked an era in tire building.

Firestone Tire & Rubber Co.
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Irreversible Steering.

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Many Sizes and Models.

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The great **strength, durability** and **resilience** possessed by the

HEALY LEATHER TIRE

is occasioned by reason that **leather, rubber** and **fabric** each are placed exactly where they are needed to meet the various strains and wear under the most severe conditions.

No Punctures. No Rim-Cutting. No Blowouts. No Skidding.

We Guarantee Our Tire.

We have much more to say. Let us tell it to you.

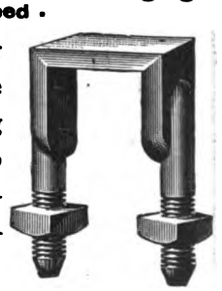
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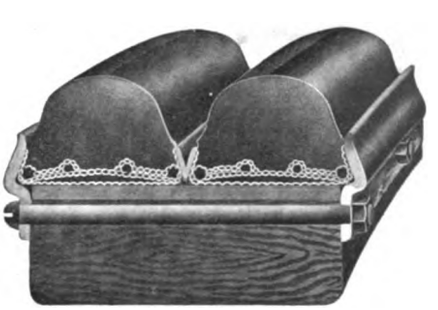


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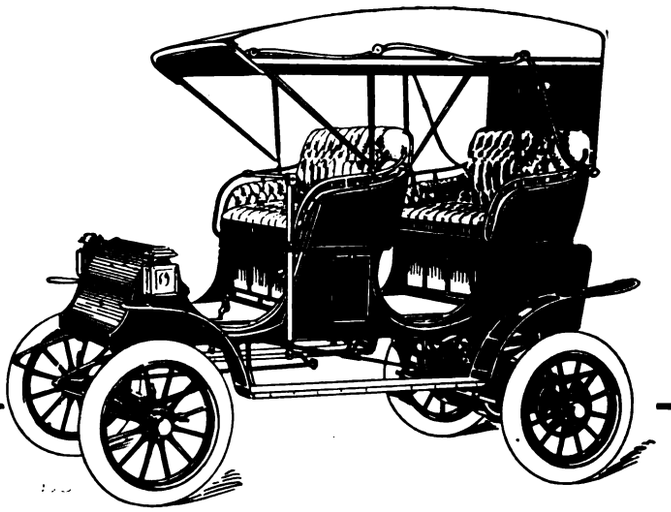
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Rest and Recreation.

MODEL 60-B.

PRICE, WITH EXTENSION LEATHER TOP, $1,700.

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We can furnish this car without top for $1600 or with Canopy top for $1675. The dash is fitted with a **Pope-Waverley** concealed front boot, a convenient and effective protection.

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has not been produced by lax or hap-hazard methods but is founded on the scrupulous care exercised in the thousand and one details involved in the manufacture of these tires.

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You are not safe from explosion unless you use

THE SNELL HYDRAULIC SYSTEM

Approved by the Board of Fire Underwriters, the Board of Health and the Fire Department.

Gasolene cannot explode unless mixed with air.

The SAFETY TANK is the only tank which is always filled with liquid; gasolene or water or gasolene and water (they can not mix). Any other tank admits air as the gasolene is drawn off and immediately becomes an acute source of great danger. The air also evaporates the most vital part of the gasolene and leaves the remnant with less power units. In the SAFETY TANK these dangers can not happen because no air can get in as the tank is always full of liquid. The Board of Fire Underwriters recognizing the absolute safety of our tank give the users of it a minimum rate of fire insurance. Write us for free descriptive booklet. It will save money for you.



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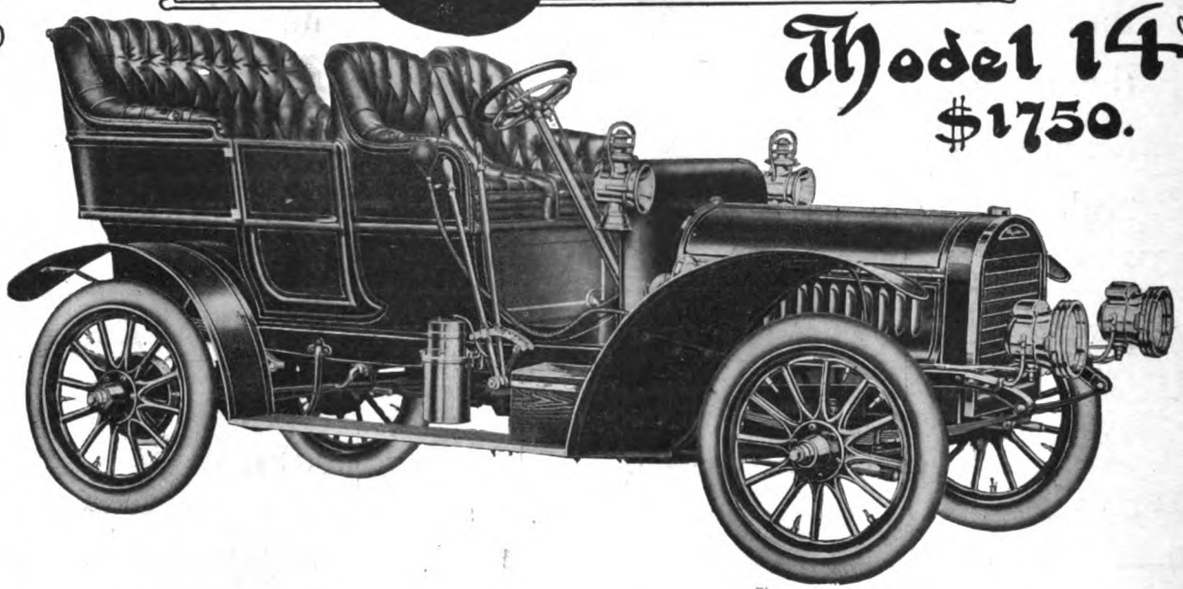
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Model 14
$1750.



A medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, July 26, 1906. No. 8

"FOUR CENTS PER PLUG, PLEASE"

Licensees Finally Bring Spark Plug Patents to Bear—Defensive Combine Possible.

The Association Patents Co., which is the patent-holding offspring of the Association of Licensed Automobile Manufacturers, has "got busy" with the spark plug patents which it acquired early this year and which, of course, are held to be master patents. The A. P. C. has invited the makers of spark plugs to "step up to the captain's office" and pay four cents on each plug they may turn out or may have turned out. Indeed, "invitation" is scarcely the proper word, as enclosed with the communication was a neatly printed contract which awaited only the recipient's signature.

Although in March last the Motor World made plain that something of the sort was to be expected, the intimation had been forgotten by many and the receipt of the "invitation" proved largely in the nature of a surprise and not an agreeable one. Some of the spark plug manufacturers intimate that there are some reasons why such a "steadying" of the market might serve good purposes, but not at the rate of 4 cents per plug. They view the royalty as excessive and doubt the validity of the patents, anyway. There is talk of a combination of interests to defend any suits that may grow out of refusal to pay the tax, but so far as can be learned no definite steps have yet been taken in that direction.

The patents in question are No. 582,540, issued May 11th, 1897, to Oscar Mueller, of Decatur, Ill., and No. 612,701, granted October 18, 1898, to F. W. Canfield, of Manistee, Mich.

The claims of greatest importance in Mueller's specification relate principally to the method of attaching the plug to the cylinder, one of these reading as follows:

"The igniter may be detached from the cylinder head without detaching the head from the cylinder, and the cylinder head may be detached from the cylinder without affecting the igniter."

He also makes a claim covering a possible modification of his idea which consists merely in making a jump spark plug with two independent pole pieces instead of using the engine itself as a ground return, and this form has been adopted as a standard by one maker for his single cylinder engines.

It is Canfield's patent, however, that holds claims of the most fundamental nature as his is alleged to be the basic patent covering the annular or recessed type of so-called soot-proof plug. After describing the device itself, which is a spark plug of the now standard type in every respect, he goes on to describe its feature of vital importance, his claim on this reading as follows:

"In a gas, oil or vapor engine igniter or sparker, a recess or counterbore of such size and depth as to prevent the explosive mixture used in the cylinder from circulating into said counterbore or recess far enough to come in contact with its deepest part around the electrode or electrodes at or near the point where said electrode or electrodes leave the insulator to enter the cylinder or firing chamber, for the purpose of preventing an injurious accumulation of the products of combustion or other foul matter on the insulation of said electrodes, substantially as and for the purpose set forth."

Appraisers Appointed for Acme.

On petition of Daniel J. Driscoll, receiver for the Acme Motor Car Company, Reading, Pa., the court has appointed J. George Ziegler and George A. Heckman to appraise the stock and possessions of the company. Until their report is rendered no authentic figures will be available. The receivership proceedings, the institution of which were reported in last week's Motor World, were taken on the initiative of Frank A. Devlin, who was generally credited with being its financial backer.

Meiselbach to Locate in Menasha.

The Meiselbach Motor Wagon Company of Milwaukee, has decided to locate its new plant at Menasha, Wis., for which President W. C. Meiselbach last week purchased the necessary land; he also let contracts for construction work on a two-story brick building, 125x85 feet.

AT THE SEASIDE SESSION

Large Attendance, but Little Doing at M. & A. M. Meeting—New Members Elected.

There was not much of importance transacted at the semi-annual and mid-summer meeting of the Motor and Accessory Manufacturers, which was held in Atlantic City yesterday, in fact, that place was chosen in order that the occasion might be something in the nature of at least a semi-holiday. And this proved the case. The surf, the boardwalk, the summer girls and other things were as potent as the business transactions, so that almost as many of the members were to be found chasing the Goddess of Pleasure in the many guises in which the lady abounds at the famous resort, as were cogitating over the drier technicalities of the whys and wherefores in the course of discussion at the business meeting.

There was a large attendance, all of the officers, save Howard E. Raymond, being present. Those in attendance were as follows:

G. J. Bradley and T. Weigle, Diamond Rubber Co.; W. S. Gorton, Standard Welding Co.; H. S. White, Shelby Steel Tube Co.; C. F. U. Kelly, Continental Rubber Co.; F. E. Castle, Gray & Davis; C. E. Whiting, Whiting Mfg. Co.; F. B. Hill, American Roller Bearing Co.; Peter Steenstrup, Hyatt Roller Bearing Co.; C. S. Mott, Weston-Mott Co.; L. M. Wainwright, Diamond Chain & Mfg. Co.; R. E. Hardy, R. E. Hardy Co.; J. W. Gilson, Hartford Rubber Works Co.; D. J. Post, Veeder Mfg. Co.; W. H. Crosby, The Crosby Co.; E. H. Broadwell, Fisk Rubber Co.; M. H. Moffett, National Carbon Co.; E. S. Fretz, Light Mfg. & Foundry Co.; Henry Hess, Hess-Bright Co.; A. I. Philp, Morgan & Wright; Frank Briscoe, Briscoe Mfg. Co.; E. S. McMaster, Firestone Tire & Rubber Co.; C. F. Splitdorf, New York; H. S. Chapin, Brown-Lipe Gear Co.; Fred Atwater, Columbia Nut & Bolt Co.; R. H. Welles, Badger Brass Mfg. Co.

The following new members were elected:

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Western Malleable Steel Co., Detroit, Mich.; Diezemann Shock Absorber Co., Hoboken, N. J.; Heinze Electric Co., Lowell, Mass.; Bethlehem Steel Co., Bethlehem, Pa.; American & British Mfg. Co., Bridgeport, Conn.

Paris Show to be Held Outdoors.

Despite its tremendous size, the Grand Palais now falls far short of having the requisite capacity to house all the exhibitors at the annual exhibition at the French capital. Its shortcomings in this respect were evident at the last show when an annex was found necessary. Another building of similar size is not to be found in Paris, or, for that matter, anywhere else, so that the question of housing the exhibition in any one or two buildings is impossible.

To solve the difficulty, the Automobile Club of France has decided to hold next year's show on the site known as the "Esplanades des Invalides"—a large open space situated just across the Seine from the Grand Palais and in front of the famous tomb of Napoleon. A temporary structure will, of course, be necessary as a protection against the weather, and the vast space at hand will afford unlimited opportunity for the display of architectural talent which will doubtless be taken advantage of to produce the spectacular setting for which the Frenchman is noted. A competition for touring cars from Paris to Nice and return is being organized to take place at the same time and it is expected that many of the exhibitors will enter. It is the intention of the promoters to provide something of greater interest to the prospective purchaser than the customary long lines of polished chassis.

Maxwell-Briscoe in Boston Deal.

Frank J. Tyler as sole owner of the stock of the Morrison-Tyler Motor Company, of Boston, Mass., has disposed of a controlling interest in the company to the Maxwell-Briscoe Motor Company, of Tarrytown, N. Y. It is the intention to form a new corporation to be styled the Maxwell-Briscoe-Boston Company, with a capital of $100,000. This company will continue the business as carried on at 121 Massachusetts avenue and at the garage located on Ipswich street. The Boston stockholders in the concern will be Frank J. Tyler, Ralph F. Coburn, Arthur E. Adams, Lucius S. Tyler and Hiram E. Wever. Mr. Tyler will be general manager of the new company.

To Produce Castings in Syracuse.

The Globe Malleable Iron Co. has been organized in Syracuse, N. Y., with A. D. Brown, president; W. C. Lipe, vice-president, and M. Marshall, secretary. They have acquired the plant of the Hyle Bros. Steel Co. and will make a specialty of castings for the automobile trade, all of the officers mentioned being now identified with the industry, Messrs. Brown and Lipe with the Brown-Lipe Gear Co., and Mr. Marshall with the H. H. Franklin Co.

The Week's Incorporations.

Louisville, Ky.—Longest Bros'. Co., under Kentucky laws, capital $10,000. Incorporators—W. B. Longest, P. S. Longest, C. S. Longest.

New Bedford, Mass.—North End Garage Co., under Massachusetts laws, capital $1,500. President, D. J. Jarry; treasurer, G. W. Auger, New Bedford.

Chicago, Ill.—Michelin Tire & Supply Co., under Illinois laws, capital $20,000. President, D. J. Canary; secretary and treasurer, Daniel McCay.

Portland, Me.—Maine Elastic Tire Filling Co., under Maine laws, with $10,000 capital; to manufacture filling for pneumatic tires. President, J. P. Bodge, Portland; treasurer, E. G. Hagge, Portland.

New York, N. Y.—The Goodyear Rubber Insulating Company, under New York laws, capital $10,000. Directors—F. S. Minnott, Mount Kisco; T. W. Blake, New Haven; W. A. Minnott, New York.

Spokane, Wash.—The Rose Automobile Company, under Washington laws, capital $50,000. Incorporators—Clarence L. Rose, Luman H. Rose, Charles D. Bibbins, Chas. White and Mose Oppenheimer.

Malone, N. Y.—The Malone, Fort Covington & Hopkins Point Railway Company of Malone (to operate by gasolene a street surface railroad eighteen miles from Malone, Franklin county, to Hopkins Point in the Province of Quebec), under New York laws, capital $200,000. Directors—W. F. Wenright, New York; Louis Haskell and J. M. Cantwell, Malone.

New York to Have Biggest Garage.

Boston's proud boast of possessing the largest garage building in the country soon will be vacated and the claim pass on to New York, when the new six-story structure, soon to be built at the corner of Broadway and Sixty-fourth street is completed. Not simply will this exceed the dimensions of the Motor Mart in Boston, however, for it will, so it is said, be the biggest building of its kind in the world, having a capacity for 1,500 machines at one time, and costing $650,000 to construct.

The site of the mammoth depot, in the heart of the uptown automobile district and in a locality which only a year or two since seemed destined for residential purposes solely, is ideal for the use intended, and the addition of the building to New York's already distinguished line of automobile warehouses will doubtless have a good effect in stimulating further developments along the same line. For a long time, the land has been withheld from the market, and a great deal of speculation as to its probable ultimate disposal has been indulged in alike by real estate men, and the automobile trade.

According to Architect Frank M. Andrews, Third street and Fifth avenue, who is working out the plans, the building will be one of the latest fire-proof construction, and in general, will be especially adapted to the needs of the garage and agency business. There will be a frontage of 173 feet on Broadway, and a depth on Sixty-fourth street of 110 feet. The style of the exterior will be the prevalent French Renaisance, the facing being of glazed brick and white terra-cotta. The total floor area will be 180,000 square feet, and four elevators will be provided for transferring the cars from floor to floor.

Besides operating a large garage of its own, the company erecting the building will rent out considerable space to smaller concerns; for this, every provision will be made conducive to the comfort and convenience of the tenants. The name of the company which has undertaken the work, and the identity of the persons behind it, are for the present shrouded in mystery.

In the Retail World.

The North End Garage Company, New Bedford, Mass., has been formed with these officers: President, D. J. Jarry; treasurer, George W. Auger; secretary, M. D. Prevost. The capital is $1,500.

Work will shortly be started on the construction of a garage at Forty-ninth and Pentridge streets, Philadelphia, to be occupied by John P. Comley. The building will be of brick, one-story high and will measure 40 by 200 feet.

C. D. Wilson and L. M. Parrish have formed a partnership to enter the garage business and will open an establishment at 26 North Second street, Hamilton, Ohio, within the next thirty days. It will be under the management of Wilson.

On June 19th, the Glenville Garage & Machinery Co., Cleveland, Ohio, filed a deed of assignment to Oak McCray in insolvency proceedings. The assets are placed at $5,000. Bond was furnished for half that amount.

The Greene Motor Car Company, Newark, N. J., has acquired the business of the Newark Tire Repairing Company, which will be conducted in connection with the garage at Washington and Bleecker streets. The Greene Company will make a specialty of this feature of the business, and is making alterations accordingly.

John Leaves Moon for Kobusch.

George C. John has resigned the sales management of the Moon Motor Car Co., St. Louis, Mo., and engaged as acting salesmanager of the Kobusch Automobile Co., of the same city. He expects to leave St. Louis on August 7th, in a 1907 Mors car for a tour of exploitation that will end at Boston.

Brandt Moves up a Peg.

Fred P. Brand, who has served the Autocar interests for some time, has reaped the reward of his service. He has been promoted to the sales management of the Autocar Co., and is now in charge of that department at the Ardmore (Pa.) factory.

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SOURS AND SNOOK IN A SNARL

Each Accuses the Other and the End of their Company is in Sight.

During the eight brief months of its existence, the McKinley Motor Car Company, 591 Main street east, Rochester, N. Y., has not been blessed with prosperity, indeed, quite the reverse has been the case. Organized last November with a supposed capital of $20,000, its present plight is shown by the statement of an indebtedness of $5,000 or more, while the total assets amount to $200 cash, and three second-hand automobiles—amounting to perhaps $3,000 valuation in all. The climax of its misfortune, however, was reached last Thursday, July 19, and the real seat of the whole trouble revealed, when Secretary Alfred S. Sours brought action against President Stanley R. Snook, charging him with having appropriated to his own use $3,300 of the company's funds, and a demonstrating car besides.

The action, both parties to which have Dickensonian names, and which presents a serio-comic grievance, requests the appointment of a temporary receiver, and an injunction restraining the defendant from destroying the rights and assets of the company. The motion will come up for consideration by the Supreme Court in special term, on June 30th.

The McKinley Motor Car Company was organized and incorporated November 22, 1905, with a capital stock of $20,000 divided into 200 shares of $100 each. The assets of the company consisted of personal property of the value of $11,600 and $8,400 in cash. Mr. Sours was the promoter of the company, turning over to the company his prospective business, agencies of automobile companies, for the consideration of twenty-five shares of stock and a salary of $25 a week as secretary and general manager.

Elwood H. Lapp, vice-president of the company, paid in $2,800; Stanley R. Snook, president, $2,500; Frederick E. McClellan, $2,800. The company was to begin business with $10,000, but as a matter of fact began with less than that amount. The funds of the company were deposited in the Alliance Bank with instructions that no checks were to be recognized unless they bore the signature of the president, Stanley R. Snook, and Alfred H. Sours.

The specific charges given in the bill of complaint are as follows:

"The plaintiff further states and avers upon information and belief and specifically charges the fact that on the 2d day of June, 1906, the said Stanley R. Snook, president and treasurer of said company, did wrongfully appropriate to his own use the sum of $2,000, which he drew from the Alliance Bank of the city of Rochester, and out of the bank account of the McKinley Motor Car Company, and did so without the consent or knowledge of Alfred H. Sours, secretary and general manager of the company.

"That on the 9th day of June, 1906, the said president wrongfully and illegally withdrew from the Alliance Bank from the bank account of the McKinley Motor Car Company, the sum of $1,300 and appropriated the sum to his own use.

"That the said President Stanley R. Snook has failed to account to the said corporation or to the said secretary and general manager, Alfred H. Sours, for the sum of $3,300."

President Snook is also charged with having hampered Mr. Sours in the discharge of his duties by appropriating to his own use a National automobile, valued at $2,400, by reason of which, it is alleged, the company has lost a number of sales through Mr. Sour's inability to demonstrate the car to the prospective purchasers.

The plaintiff also states that the company is heavily in debt, owing upward of $5,000 and with but $200 and three second-hand cars valued at $3,000 to meet its obligations.

To be Called the Merciless.

The "Merciless" car is coming. It will have six cylinders and be rated at 60 horsepower. Its designer is John F. McMulkin, who formerly helped build the American Mercedes and who holds many patents covering special features of automobile construction. A number of these will be embodied in the new car, and not the least of them, though it is not covered by patents, will be the use of solid tires on the rear wheels. The Huntington Automobile Co. is building four of these cars at Huntington, L. I., and their appearance at the opening of next season is expected to make as much of a sensation as the inapt choice of the name probably will create.

More Room for Veeder.

The Veeder Mfg. Co. has let contracts for a three-story addition, 40x54 feet, to its plant at Hartford, Conn. The new structure, which will be ready for occupancy about October 1st, will be of the most modern fire-proof construction—concrete, reinforced with rectangular twisted bars of steel. The basement and first floor will be occupied by the Post & Lester Co., in which the Veeder principals are heavily interested, and the two upper floors by the Veeder Mfg. Co. itself.

To Test Alcohol for Uncle Sam.

Following the passage of the free alcohol measure during the latter part of the recent session of Congress, it is announced that Prof. Charles E. Lucke, of Columbia University, is about to undertake, on behalf of the government, an investigation into the possibilities of alcohol as a fuel for small internal combustion engines.

DARRACQ ADMITS DEFEAT

Warns Foreign Makers that their Days in America are Numbered—His Report.

"It ees not for nossing," as the Gaul has it, that the French industry has been establishing special bureaux and sending trade emissaries over here to look into the status of the American industry and report on some means of preventing France's hold on a very good thing from being loosened, if not destroyed altogether. Some of these special envoys have been reporting to headquarters already and their information is being disseminated on the other side. One of these reports was recently read by M. Darracq before the Chambre Syndicale du Cycle et de l'Automobile, at Paris recently.

"The American automobile industry is in a period of unheard of prosperity, and the future promises to exceed all expectations, because industrial traction is developing at a great rate," he said in part. "An examination of the enclosed figures will show you that the chances for the export of French constructions is rapidly diminishing. In spite of the recognition that French cars are better finished they will not be longer able to figure in the American market. There is still time to open manufacturing branches in the United States, and that is the only chance French makers will have to reap a little of the harvest that is here waiting.

"Of the opportunities to sell motor cars, special castings for cylinders and accessories of all kinds, no one at Paris can have any idea. A large number of Frenchmen are already here to push their goods, and others ought to be encouraged to come and do likewise. It will be well to recall some of the figures that illustrate the trade in motor cars in the United States. During the year 1905 the import of foreign cars was 1,036, valued at $6,700,000, an increase in two years from 375 cars of a valuation of $1,300,000. The home production during the year 1904 was 30 per cent. greater than that of 1903, that of 1905 showed an increase of 32 per cent. in number and 66 per cent. in valuation. This shows clearly how rapidly the prices have risen. The Americans began by making small cars and they are slowly increasing power and value to come near the style of the imported article. The average price per car was in 1903 $1,170; in 1904, $1,422, and in 1905, $1,780." The report concludes with the statement that "several large American concerns have acquired French rights and are launching out on an extensive scale in motor construction."

H. A. Lozier, of the Lozier Motor Co., returned from abroad this week. While in France he witnessed the Grand Prix and, of course, saw many foreign cars, but none that he considered superior to his own Lozier car.

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Much has been written and printed concerning the care and use of tires for automobiles and much misinformation has been circulated.

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Book about "bubbles,"
Containing Comic Opera gems
Death to the discontent germ.
Every copy a side-splitter—
Fantastically funny.
Gee, how it cheers—
Hurrah for the Hilarity Hunter;
Intelligently edited by the
Jobberwock and every joke made by hand;
Kitchen cabinet performance from cover to cover; demonstration of
Love in a Frisky Automobile.
Magazine of Marvels, devoted to
New ways of making air pay and
Out-classing all old timers. Devoted to
Pneumatic tires that are good. It's the
Quintessence of the
Rubber business.
Socrates himself could socially benefit by it and with much
Truth speak and
Unreservedly endorse it with enthusiasm, thereby
Very easily gaining an understanding
With his wife.
Xanthippe to get Fisk Tires of those
Yankees at Chicopee Falls and take an outing to
Zanzibar, with no thought of tire troubles.

BURTON PARKER, Publisher,
Chicopee Falls, Mass.

Some More Proof of SINGLE CYLINDER

CADILLIC Economy

33 Miles per Gallon.

HERE'S WHAT A PROMINENT RICHMOND, VA., PHYSICIAN DID.

Richmond, Va., June 28th, 1906.

MOTOR TRANSFER CO., Richmond, Va.

Gentlemen—So much has been said about the two-gallon contest that I thought I would see what my 1905 Model F Cadillac would do.

Accordingly, I loaded her with a gallon and a half of gasolene and started out, most of the time with only two passengers, but part of the time with four and about seven miles with six passengers.

I went up hill and down hill, on level and on every kind of road. Now, when I finished up, my odometer (which is correct) registered 49¼ miles. Don't you think that pretty good for one and a half gallons?

I regret now that I did not try her out on two gallons. Well, some fine day I think I will, and will be glad to give you report on same.

Wishing you good luck, I am, Very respectfully. (Signed) R. ANGUS NICHOLS, M. D.

WHEN YOU HEAR ANYONE COMPLAINING ABOUT THE COST OF OPERATING AN AUTOMOBILE, YOU MAY DEPEND UPON IT, HE IS NOT RUNNING A SINGLE CYLINDER CADILLAC.

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THE MOTOR WORLD

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NEW YORK, JULY 26, 1906

Again the Self-Starting Motor.

Self-starting motors of the internal combustion type, while in the nature of a dream, yet are a dream which bids fair to become a reality, though just when, is not a matter of certainty. At all events, even at the present time, numerous devices intended to effect this end, are on the market, some of them being of a nature really meritorious. Among other novelties, the last American show season brought forth the idea of accomplishing this by the use of acetylene gas, mixed with air, of course, and introduced into the cylinder through an appropriate valve of the injector type, there to be fired by spark in the ordinary manner. It is to be regretted that so little has been heard of the device in question since that time, for it offered perhaps more encouraging possibilities than any other yet proposed. However, that the idea has not been entirely lost sight of, is shown by the fact that a French periodical has recently heralded a similar invention by one of its compatriots, which, needless to say, is hailed as being entirely original.

Without going too deeply into detail, suffice it to say, that this later scheme contemplates the use of some hydrocarbon gas, more preferably acetylene, such as is always at hand for use in feeding the lamps, which, being passed through an injector, takes up a regulated volume of pure air, giving in this way the combustible mixture required, which then is forced into the proper cylinder or cylinders, there to be fired by spark. It is pointed out that in this connection the gas may be used in any of the forms in which it is employed for lighting, that is to say, either compressed, dissolved, liquified, or under slight compression direct from a generator of the carbide and water type. The function of the injector being simply that of securing the proper admixture of air, it may take on any form suitable to the purpose, perhaps the best being that of the ordinary steam engine injector, while the simplest imaginable, is that of the common Bunsen burner.

Indeed, by the adoption of the requisite piping and injector, it is likely that no other extra apparatus would be required for starting the ordinary motor, since the regular lighting equipment could be relied upon to furnish sufficient gas at any time. Some method of introducing the starting mixture into the proper cylinder would, of course, be necessary, and, in magneto ignited machines, an extra primary ignition outfit would have to be carried. Otherwise, the machine would remain practically unaltered, and on this account, the necessary apparatus might be designed to apply to almost any car, at slight expense. The prospect is most inviting, starting by hand, now having become too archaic to be tolerated much longer. To work out the method to the last degree, that is to say, to discover the proper mixture to be used, develop the necessary mechanism, however simple it may be, and then to fine it down to a condition of certain action, will require time and patience. Yet that it will ultimately be done to the complete satisfaction of the user seems hardly to be a matter of doubt.

Part the Tires Play.

Though more than a fortnight has elapsed since the running of the Grand Prix, there appears to be no sign that the usual crop of "lessons of the race" that generally follow upon the occurrence of such an event is apt to be forthcoming. And the reason therefor is so plain as to require no explanation. The only lesson involved is one that has been repeated in every road race for the past three or four years. In all that time road racing has been little more than a test of tire endurance, and cars have won or lost almost entirely upon the performance of their tires.

Seldom indeed is the prescribed number of laps in the course made without many changes being necessary, so that it is plain that the car has long since outgrown its "footwear." Such speeds on a road surface are utterly impossible without the pneumatic tire, but even a greatly lesser rate is fatal to rubber and cotton or any combination of it thus far devised. When in addition to this is considered that the internal pressure the tire is called upon to stand exceeds that of many boilers, the marvel is not that it fails but that it is capable of enduring such treatment for a moment.

Materials of a most perishable nature, subjected to a heavy pressure from within, bearing a ton or more of dead weight which is hurled violently at every equality of the road; that is the situation the tire must withstand. And the highway that appears delightfully smooth and level at ordinary speeds develops a marvellous unevenness of surface when the rate of travel averaged by a racing car is attained. Design alone is not responsible for half the improvement brought about in the car during the past half decade—better material represents a great deal of it for the steels used in high grade cars at present are no more like those employed in their predecessors than cheese is like chalk. But the tire maker has had to stick to the materials with which he commenced. And it is indeed a miracle that they can be made to endure so much. Ten years ago a prediction that the pneumatic tire could be made to bear a ton load at a speed of more than sixty miles an hour would have been flouted as utterly beyond the limits of possibility.

Riot of Ornamentation.

There is every reason to believe that the Briton who proposed the employment of figureheads on motor cars, actually meant every word of it. There is, of course, the vaguest possibility that the suggestion was an attempt at satire of a mild and harmless description, but, on the other hand, John Bull clings to tradition so faithfully, and so ardently repels anything obviously modern, that the chances are pretty strong that the idea was seriously conceived. "The motor looks bare because there is no horse in front of it," he ruminates, "therefore,

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why not mount a dummy horse on the cooler, and there you are?"

The scheme may not be as novel as he imagines, however, for over a year ago a genius down in Jersey, built a machine and placed the stuffed head of a horse on the fore part of it. What is more, he entered and won a race with it, and a track race, too. But it is not likely that his example will be followed by other American builders any more than it is that the Englishman's idea of mounting a bird, or even the family crest, will be met with approval here.

The apparition of a machine honking about the country crowned with a carved and bewhiskered effigy of its maker or owner, or garnished with a dove of peace, an eagle, or even a great brazen crest or monogram, is too garish to be considered seriously. Yet there is an awful possibility that with due encouragement, it might become a reality, at least to a partial extent. For despite the incongruity of the idea in its exaggerated prospect, so great is the inborn savagery of the human race, that any possibility of increasing the display of the machine in such a way, would be jumped at eagerly by a certain class of users. Yet even in its mildest application, the idea is distinctly offensive. For the entire purpose of the automobile is purely utilitarian. Even in its application to the vehicle of pleasure, pure and simple, it is a utility, and the more it is developed with this idea in mind, the greater will be the rate of increase of its usefulness.

In the olden times, the great and classically good, rode in carriages of state, gaudily bedight with gilding, and padded with silks and satins. Yet with the growth of common sense appreciation of merit, such things were ultimately discarded because they detracted from the utility of the vehicles, however much they increased their apparent worth. The automobile maker, taking up the dice of progress, rattled out first of all a horseless carriage, and later an automobile, basically different from it, yet embodying certain of the traditional features of the prototype. But there are still retained many features which are needless, and of a piece with the gilding on the old state chariots.

Ten or twelve coats of expensive varnish, once necessary to preserve the condition of the wooden bodies which alone were possible to the makers of those days, are like so much gilding, when applied to a metallic surface. Other treatment would serve as well, and but for the traditional demands of the eye trained by history, would look as well. Filigree trimmings, plated ornaments and boudoir interiors, belong in the same category. Fine, they may be, expensive, they certainly are, and therefore, self-recommended to many users, but they are not durable, are easily injured, deteriorate rapidly, need frequent renewal, and by these tokens, are wholly beside the real purpose of the motor vehicle.

Utility, by no means, argues against comfort, nor does it frown upon luxurious fittings, nor costly outlay in attaining them, it simply disinherits all that is not directly conducive to the main purpose of the device to which it is applied. The fact that hundreds of opulent owners are scurrying about in machines of the simplest outward appearance, some of them even tinted in neutral grey, goes to prove the assertion. Your discriminating purchaser wants a machine which will go, first of all, and one which will go, second, last and always. And the biggest, gaudiest body ever dedicated to a little German King, never sold or will sell a motor which will not run, simply because curled hair is not a substitute for gasolene.

The Hand of Fate.

"The hand of destiny moves in a most marvellous way its wonders to perform," appears to be an apt paraphrasing of the saying in question where the matter of the net result of accidents is concerned. Like the man who drops off a chair and breaks a leg, a car will sometimes playfully tap a telegraph pole and incur a bill for repairs that almost equals its list price. Another man may fall out of a five-story window onto the unyielding concrete pavement of an areaway 75 feet below and suffer nothing worse than sundry bruises.

Cars will undergo equally serious experiences and still bring themselves and their passengers off unscathed. And one of the most extraordinary ventures of this kind just comes to light from the other side. If questioned on the subject the driver would probably have sworn that he was not going very fast but the fact that after skidding on a newly sprinkled piece of road, the car tore away ten feet of iron railing on a bridge, slewed round violently and after having demolished almost the entire front of a small brick cottage, it cleared a sofa and brought up in the fire-place against the rear wall with the engine still running, would appear to throw some doubt on his veracity. Apart from one of the headlights losing its lens, neither the driver nor the car suffered any injury. Its marvellous escape is attributed to the fact that it was fitted with pneumatic safety buffers, but the hand of fate would seem to have had a good deal to do with it.

In an event of such magnitude as the Glidden touring contest, it is inevitable that shortcomings should develop. It is inevitable that a lot of irritability and idle charges and bad feeling should result. There are many of the contestants who doubtless fancy that they are martyrs; but the real martyrs are the officials. They are the ones who have to bear all the burdens and so far as many of them are concerned the consciousness of unselfish and self-imposed service "for the good of the cause" is their sole reward. It ill befits any genuine sportsman to make their burdens heavier or to impugn their honor by giving voice to idle and unproven charges. Any man can be a cheerful winner. The real sportsman is he who proves himself a good loser.

A difficulty, hitherto unforseen, has presented itself to the promoters of motor 'bus lines in England recently, in the shape of one or two narrowly averted accidents due to collisions with low overhead bridges at railroad crossings. Low-limbed trees also, have proved a source of danger to the passengers riding on the upper decks of two-story 'busses, and it may be that on this account, the double deck type will have to be abandoned except for urban service.

Unlike the locomotive, the size of the automobile is not closely restricted by such factors as the width of rails and the height of bridges. A standard tread has been adopted by common consent, but there appears to be no limit to expansion in other directions. If some of the manufacturers do not curb their ambition in this respect they will find that their cars have outgrown their surroundings.

Speaking of mechanism, the "rule o' thumb" man may not present a pleasing appearance on the car, nor serve to ornament it when on the road, but he always fits to good advantage when a breakdown is encountered, and far outweighs the spick and span "graduate" when it comes to a question of resource.

The possession of a punctured tire is strong presumptive evidence of the use of bad language.

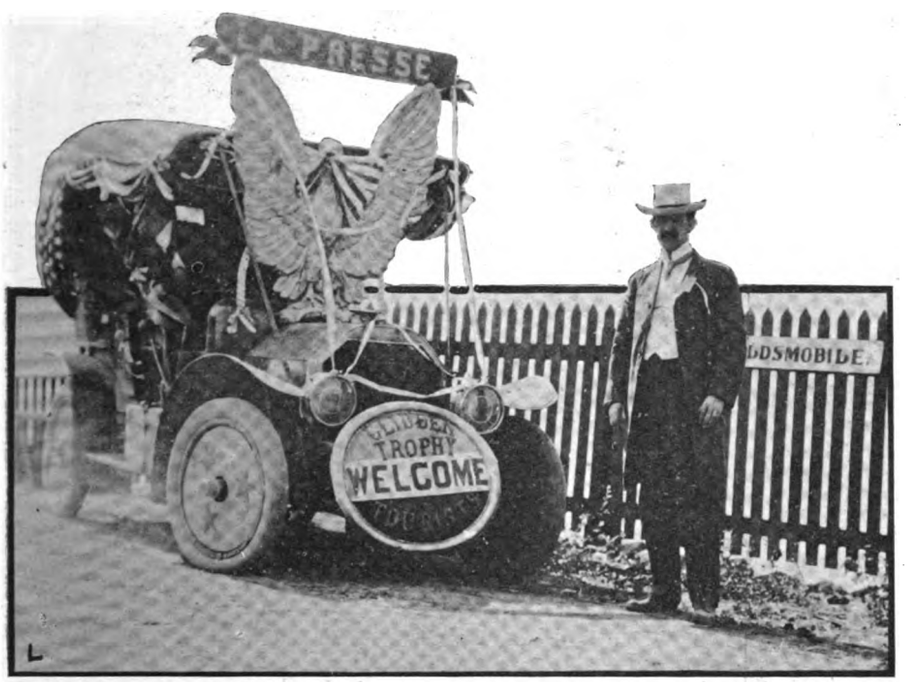
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GLIDDENITES ENTER CANADA AND EMERGE AGAIN

Warm Welcome Extended in the Dominion—Mud and More Rigorous Rules "Weeding them out" on Homeward Journey.

Quebec, July 17.—This morning the tourists competing for the Glidden and Deming trophies left for Jackman, Maine, a distance of 109 miles.

Twenty-three of them still have perfect scores and with over 700 miles of the 1,134-mile journey behind them, believe they can continue their good work to the end.



CANADIAN NEWSPAPER'S WELCOME TO THE TOURISTS.

It was generally thought when leaving Buffalo on the 12th, that long before this point was reached the "clean score slate" would be cracked from top to bottom. That so many cars are still on the honor list is a complete surprise and only goes to show that even automobilists do not realize how many good American cars there are on the market to-day.

Nineteen of the twenty-three cars are competing for the Glidden trophy and all the work on them, even to filling of tanks and oiling, has been done on the road. The air-cooled cars are making an excellent showing in spite of steep grades and sandy stretches. A Marmon and a Knox still are on the honor roll.

The cars with perfect scores in the Glidden contest upon their arrival at Quebec follow: Three Pierce Arrows, two Thomases, two Stearnses, two Oldsmobiles and one (each) White, Pope-Hartford, Pope-Toledo, Marmon, Apperson, Packard, Knox, Columbia, Peerless and Cleveland.

Three Whites and a Maxwell are tied for the Deming trophy with clean slates.

There are some cars on the run besides the contesting ones that are making remarkable records. Tom Fetch is making the trip over the ground twice every day to take out and bring in the checkers. His Packard has already covered 1,200 miles.

The Pierce six-cylinder experimental car which carries a load of newspaper men, has been over 1,000 miles of ground. George N. Pierce's orders to the drivers of this car on leaving Buffalo were to "bang time out of it." Thus far they have not succeeded in doing it.

Walter White's pilot car and the Maxwell runabout carrying confetti, have also been standing the test remarkably well. The work of the Knox truck is astonishing. Since leaving Lake Champlain it has made every night stop by 6 o'clock with the contestants' baggage.

The run to Montreal from the Hotel Champlain on Wednesday was one of the most delightful of the entire trip thus far. The roads for the most part were good and in stretches fine. They led along the shore of Lake Champlain and then up along the bank of the Richelieu river to very near the Canadian city.

At Rouse's Point, on the border, the tourists expected to be given a great deal of trouble by the custom house officials. Such was not the case. There was a checking station there and cars were allowed one hour to complete the formalities. These, however, were made so easy that five minutes were long enough for any of the cars. Many, however, took the full hour.

At the Lozier factory at Plattsburg, some of the cars that were ahead of time stopped and paid a few minutes' visit and were well received.

The official standing at Quebec follows:

Glidden Contest:

Name.	Car.	Penalty.
Percy Pierce	Pierce	0
Archie Hughes	Pierce	0
Philip Flinn	Pierce	0
H. K. Sheridan	White	0
Arthur Holden	Stearns	0
L. J. Petre	Stearns	0
Ezra Kirk	Thomas	0
G. M. Davis	Thomas	0
Charles Barrett	Columbia	0
William Wright	Knox	0
George Soules	Pope-Toledo	0
Wilbur C. Walker	Pope-Hartford	0
N. H. Van Sicklen	Apperson	0
F. W. Wing	Marmon	0
Palmer Abbott	Oldsmobile	0
E. Keeler	Oldsmobile	0
Charles Burman	Peerless	0
Dexter Fairbanks	Cleveland	0
E. R. Lozier	Lozier	1
R. R. Owen	Reo	1
M. S. Hart	Corbin	2
W. W. Burke	Columbia	3
T. P. C. Forbes	Reo	3
A. L. Rich	Lozier	9
S. C. Kirkman	Maxwell	10
J. H. Becker	Elmore	11
John Banford	Oldsmobile	12
S. B. Stevens	Darracq	14
W. A. Danzer	Crawford	19
J H. McDuffee	Stoddard-Dayton	26
T. E. Schultz	Marmon	36
F. J. Pardee	Packard	55
W. L. Davis	Pope-Hartford	79
Robert Crawford	Stevens-Duryea	87
B. H. Knowles	Locomobile	89
C. G. Wridgway	Peerless	115
Philip Corbin	Corbin	240
Charles Parvin	Packard	262
H. D. Newman	Packard	340
J. A. Mechaley	Pope-Hartford	360
F. H. Pietsch	Peerless	365
James Loughlin	Cleveland	715

Deming Contest:

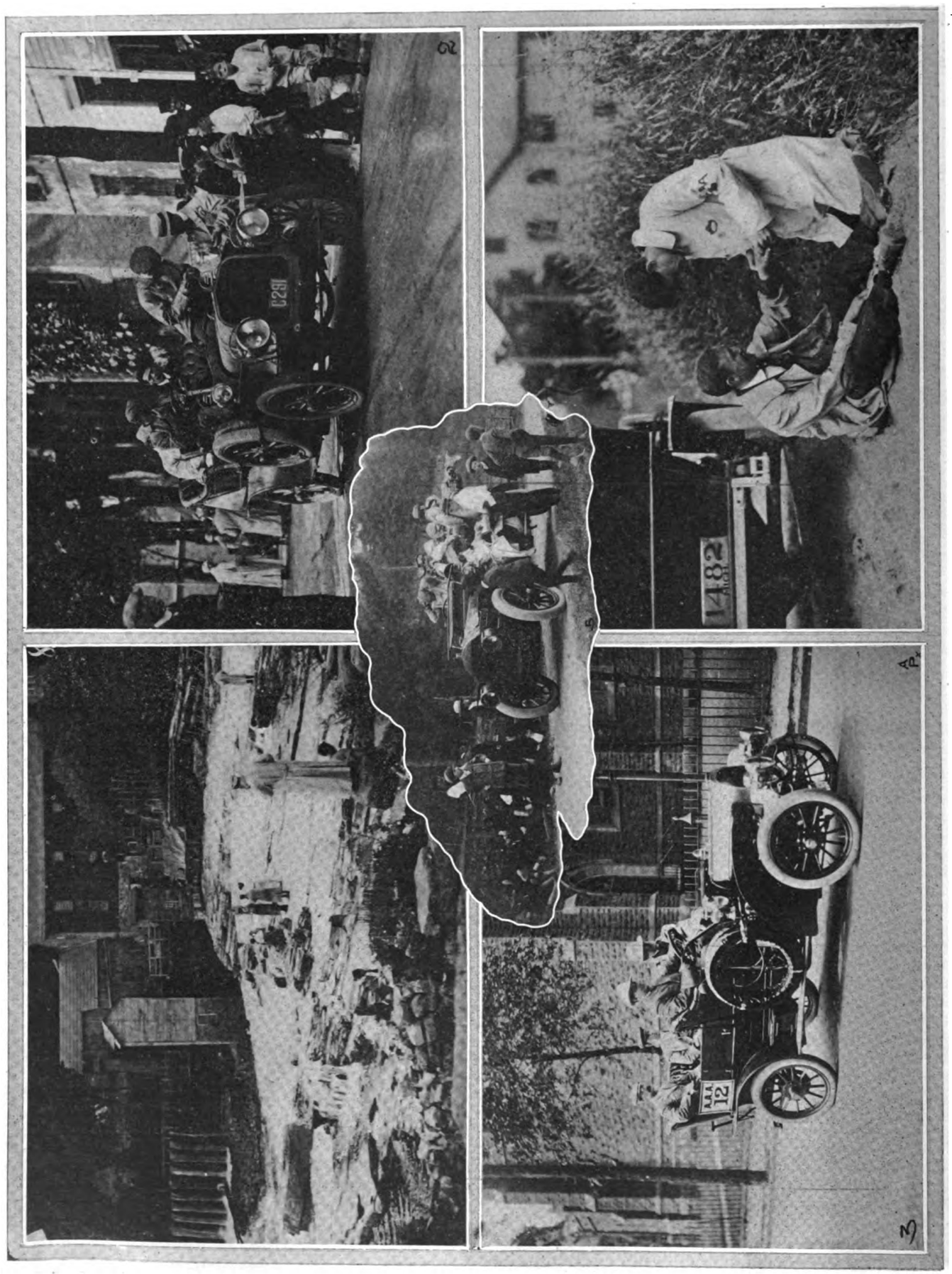
Watson Coleman	White	0
A. A. Post	White	0
J. G. Cassatt	White	0
C. W. Kelsey	Maxwell	0
L. F. Braine	White	153

The only cars to be penalized on the run from Champlain were the 20 horsepower Pope-Hartford, driven by Joseph Mechaley, which lost 70 points on account of coil trouble; the 35-40 horsepower Cleveland car driven by James Loughlin, which lost 52 points, had engine troubles near St. Hubert; and Philip Corbin, who lost 9 points on account of tire trouble.

But two cars failed to show up at Montreal that arrived at Hotel Champlain. Elwood Haynes withdrew his Haynes and Walter L. Marr his Buick.

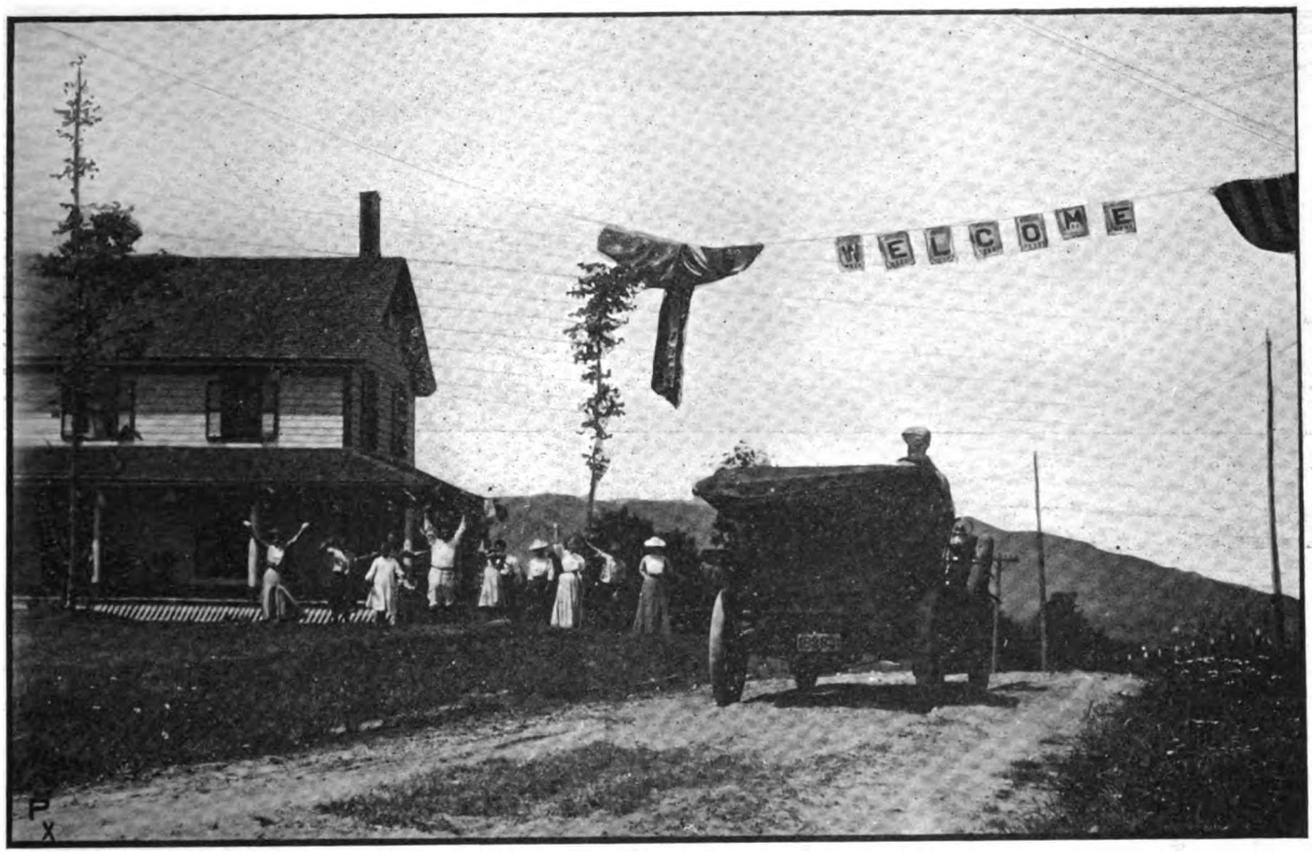
The Canadians certainly did all in their power to give the tourists a good time. At

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1. GLIDDEN TOURISTS VIEWING AU SABLE CHASM. 2. PHILIP CORBIN COMPARES WATCHES. 3. WILBUR C. WALKER AND HIS POPE-HARTFORD.
4. A JOB FOR THE OFFICIAL SURGEON. 5. THE SIX-CYLINDER PIERCE FREE LANCE PRESS CAR.

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AN UNEXPECTED GREETING IN THE MOUNTAINS.

Montreal they were received by the mayor in his office. In addressing the tourists he stated that while he was not an automobilist himself he was in favor of them and was always glad to have them come to Montreal.

In the afternoon, as the guests of the city and the Automobile Club of Canada, about 200 of the entrants made the trip to Lachine by trolley and back to the city by steamer down the St. Lawrence and through the Lachine Rapids.

Every attention possible was given them by officials there. Those that shipped baggage from the Hotel Champlain by rail were able to secure it at the depot with very little trouble instead of going to the custom house for it.

The inhabitants in the smaller towns all turned out to greet the automobiles as they passed through. Children had been provided with American flags to wave while the stars and stripes showed conspicuously in the decorations with the English flag and the tri-colors of France. The tourists also provided themselves with flags of both nations and the display suggested a holiday of some sort.

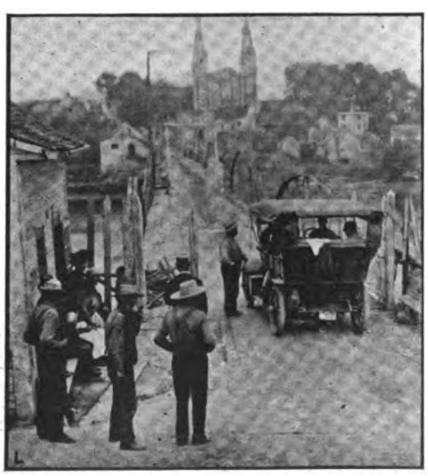
In Canada, too, the farmers seem to be glad that the automobilists were passing their way. Those that knew of bad bumps in the road stopped the tourists to warn them, facts that were greatly appreciated, especially by those riding on the rear seats. Bouquets and even notes have been thrown into the cars as they sped past the enthusiastic natives.

S. B. Stevens was fined 14 points for going over the line at Rouse's Point 7 minutes too soon. One of his passengers was off in figuring his time.

James M. Morrison, of Boston, a non-contestant, had another wheel come off his Pope-Toledo this day, which made the second since he joined the run at Utica.

What came near being the serious accident of the day was when the English Daimler smashed into the back of Gus G. Buse's Packard near one of the controls, in a cloud of dust. The Packard escaped with little injury, but the radiator on the Daimler was broken.

The tourists had expected to find bad roads from Montreal to Three Rivers,



THE BRIDGE ACROSS THE ASSOMPTION.

where they put up on the 20th, and expectations were fully realized. Following the course of the St. Lawrence in the sandy bottoms, the power of the machines were taxed to the utmost, yet but few were penalized and but one perfect record marred.

John L. Snow, of Boston, the driver of the 30 horsepower Peerless, met with an accident that forced him to quit the contest. While rounding a curve in the dust raised by a car ahead, Mr. Snow's steering gear tightened on him and the car shot out of the road into a barbed wire fence, tearing away about 40 feet of it. Wire became tangled in his gears so that Snow was five hours late in reaching the night control. Saturday he drove the car on to Quebec, after working all night on it, and will continue to follow the tour to Bretton Woods as a non-contestant.

The "knockers" certainly got their hammers out at Three Rivers. The principal hotel in the city had a regular rate of $1.50 per day, American plan. This was boosted to $4 for the benefit of the tourists. The keeper of a toll gate, just before entering the city, got 50 cents out of every car. The usual price is 15 cents.

Most of the tourists put up for the night on the steamer "Three Rivers" that drew up to the wharf for the occasion. Single berths sold for $1.75, a cabin for $3.50. Appropriate songs were composed for the ocasion and sung by the entire party.

Everybody made an early start Saturday morning for Quebec, glad to leave Three Rivers behind. It was a little too much for

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WHEN THE PEERLESS STEER NG GEAR WENT WRONG.



BAD GOING IN CANADA.

even those who were used to "roughing it." It is said that powder that was neither tooth or face was in demand that night at both hotels and steamer.

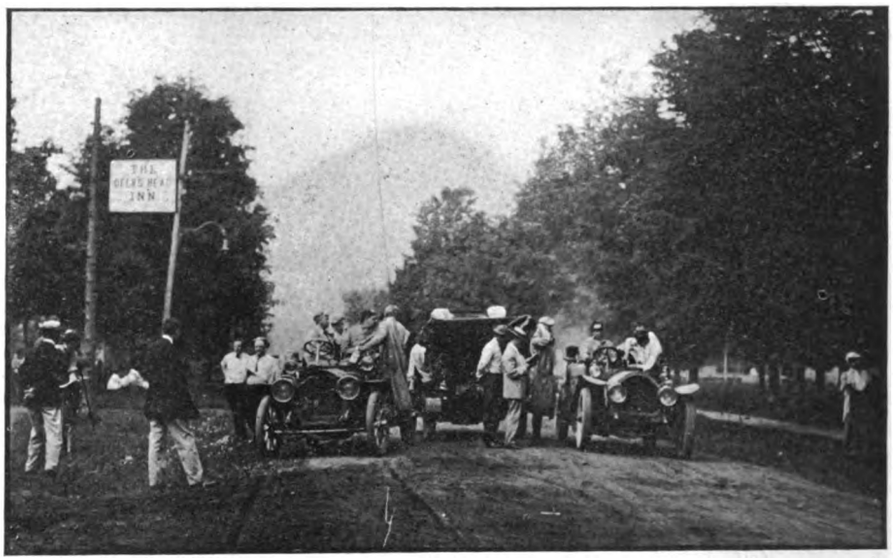
The 97-mile journey to Quebec on Saturday did not vary much from the run out of Montreal. The inhabitants greeted the tourists everywhere with cheers and flowers. There were more hills than on the preceeding day and on account of their being sandy slow progress was made up them. The Corbin, Marmon and Knox cars showed the worth of air-cooling in making the grades fully as easily as the water-cooled machines.

There were but two cars penalized on Saturday. Kirkham's 16 horsepower Maxwell that up to Three Rivers had had a perfect score, went over a very bad rut in the road near St. Genevieve and broke all four springs. Ten points were lost by the car. The other penalization was to the Stoddard-Dayton driven by J. H. McDuffee. He was penalized 9 points, his delay being due to engine trouble.

At Quebec the tourists put up at the Chateau Frontenac, and the St. Louis, the former being the official headquarters. Windsor White, of Cleveland, and Harry Fosdick, of Boston, were there to greet the contestants upon their arrival. The mayor of the city welcomed the tourists personally and both Sunday and Monday were put in sight-seeing in the quaint old city.

Jackman, Me., July 24.—For the first time since the Glidden touring contest left Buffalo, twelve days ago, the contenders to-day tasted of mud. They had experienced plenty of sand and dust, bumps and boulders, but the weather gods had been unduly kind and withheld rain. Last night, however, rain fell, and although it had ceased when the tour left Quebec this morning, the roads still were wet and slippery. It is scarcely necessary to say that the wetness added to the interest of the going.

It had been expected that such conditions would have been encountered long ago, and thereby assist the eliminating process. As the expectants had been disappointed in this regard, and as the contest was more than half completed at Quebec,

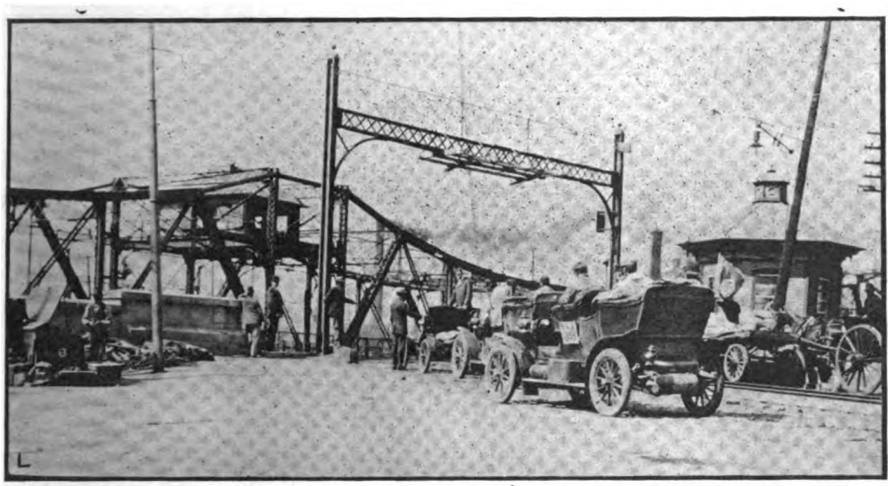


"CHECKING IN" FOR THE NIGHT.

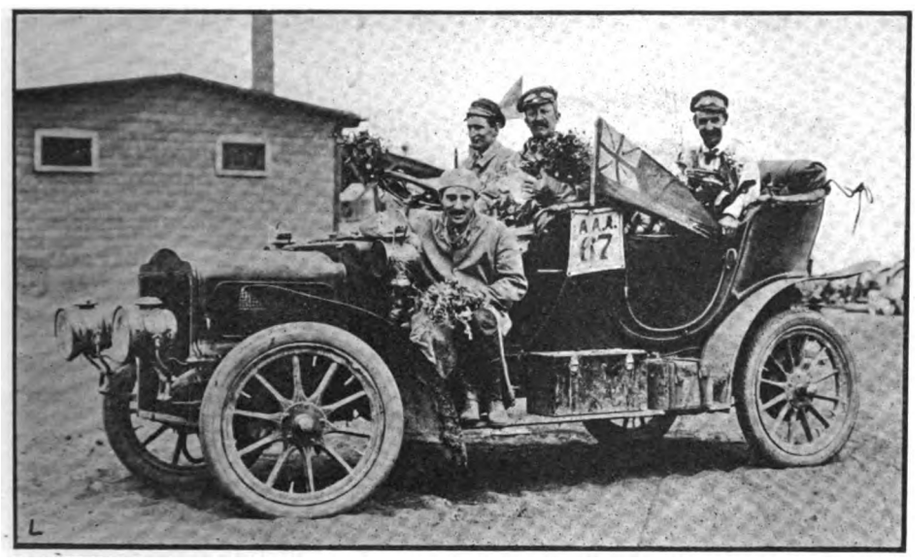


A STREET AND SOME KIDS IN THREE RIVERS.

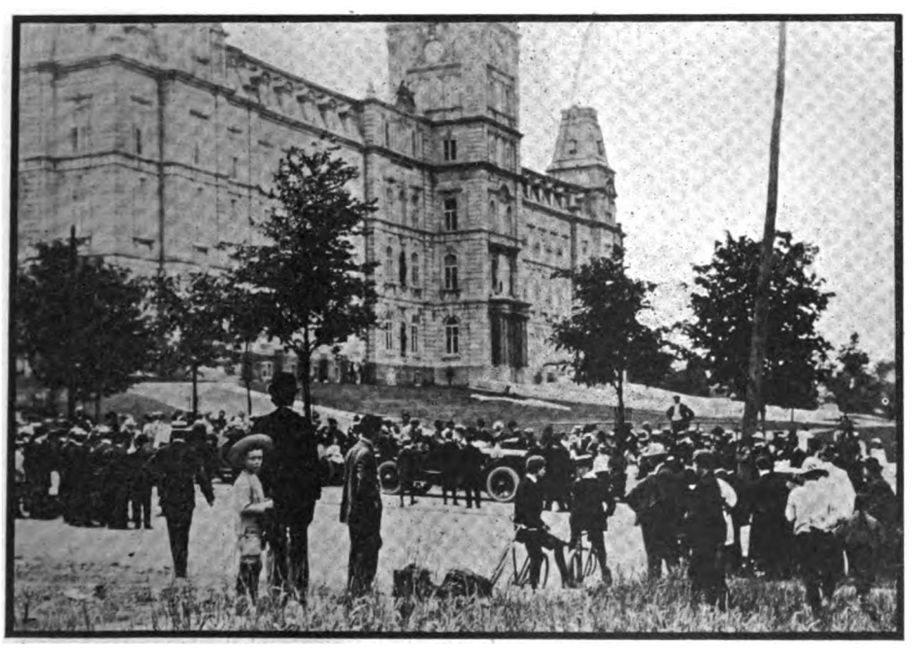
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THE DRAWBRIDGE WHERE POINTS WERE LOST.



PROOF THAT BOUQUETS WERE THROWN.



THE ARRIVAL IN QUEBEC.

and there still remained tied 19 contenders for the Glidden trophy and 4 for the Deming statuette, the tour committee realized that it was up to them to provide more vigorous rules if a winner was to be selected this side of the Golden Gate. They were equal to the emergency and provided those very rules. They doubled the number of checking stations. Instead of checkers being 25 or 30 miles apart, they were but 10 or 12 miles removed from each other. This made adherence to the schedule a matter of fine judgment, and left the competitor who fell on evil times few moments in which to repair his troubles.

As the result of the mud and these more strenuous rules, the number of perfect scores in the Glidden contest was reduced from 19 to 15, and for the Deming trophy from 4 to 2. The unfortunates in the main contest were A. Holden, Stearns; Palmer Abbott, Oldsmobile; H. K. Sheridan, White, and George Soules, Pope-Toledo.

Those who lost points in the fight for the Deming trophy were J. G. Cassatt, White, and Watson Coleman, White.

Nor does this represent the total of the day's losses, as with several checkers still to hear from, at least 11 of the contenders, other than those mentioned, also slid further back. The 11 against whom penalties were charged during the day were as follows: F. L. Braine, White, 2; E. R. Lozier, Lozier, 5; M. S. Hart, Corbin, 7; J. Mechaley, Pope-Hartford, 9; John Banford, Olds, 9; B. H. Knowles, Locomobile, 10; C. J. Wridgway, Peerless, 17; I. C. Kirkham, Maxwell, 20; Philip Corbin, Corbin, 34; F. H. Pietsch, Peerless, 64; A. L. Rich, Lozier, 209.

The route lay through a glorious country, but led over the boundary range which suggests that there was some steep grades encountered, as, indeed, was the fact. There was one muddy hill near St. Clune, 73 miles from here, that teased the best of them. It was very steep and slippery, and there were few of the cars that did not require help to reach the summit. The weather, however, was cool, and the mountain air invigorating, making this in that respect one of the most enjoyable days of the tour. But, as stated, the slippery hills, and the many bumps, detracted largely from the pleasure.

To-night, so far as the tourists are concerned, Jackman is a tented village. Because of scant hotel accommodations, the committee arranged for the erection of some 50 tents, in which the majority of the tourists will be housed for the night. As usual, even the most modest hotel has doubled its rate, while a charge of $5 is being made for the privilege of sleeping in a tent. That there is growling readily may be supposed. In fact, some of the grumblers have gone so far as to openly allege that there are those officially connected with the contest who have extracted graft, or otherwise taken advantage of the poor hotel accommodations to divert some of the tourists' money into their own pockets.

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REAL RACING AT DETROIT

Two Days of Exciting Sport—Oldfield Wins Big Event and Rogers is Conspicuous.

Detroit saw some real automobile racing on Friday and Saturday last, 20th and 21st inst. It was provided by Barney Oldfield & Co., reinforced by A. C. Webb, now piloting a Premier; G. Vernor Rogers, the Mitchell meteor, who so recently and impressively flashed on the racing firmament with startling suddenness; C. A. Coey, the Chicago crack, and several "native sons." As many as nine cars started in a single event and all finished within a space of 200 yards, while there were several hair-raising finishes, most of them supplied by Oldfield, who has become a real racing man with confidence in himself and his car in contradistinction to Oldfield, one time throttle-opener and player to the grandstand. The 6,000 people who saw the sport on Saturday and the smaller number who witnessed it the day before, obtained more for their money than ever they had obtained before at an automobile meet.

Oldfield competed only in the five-miles Wolverine Sweepstakes for what was said to be a purse of $2,500 in gold. He won his heat and semi-final and then the race itself and in each instance displayed glorious skill and judgment. He permitted the others to set the pace until the last lap, when he came with a grand and well-timed burst of speed and finished in front by a close margin. In the final he beat out Webb by a scant yard in 5:11⅕. Each afternoon Oldfield also drove an exhibition mile—on Friday in 56⅕ seconds and on Saturday in 56 flat, which stands as a track record.

On Friday, the Mitchell pair, J. W. Bate and G. V. Rogers, cleaned up the first two events. In the five miles for fully equipped cars listing at from $1,000 to $2,000, Bate won from a field of nine, after an exciting three-mile duel with Crankshaw (Buick). It was nip and tuck between them until the last lap, when Bate nailed the Michigander by four lengths. Rogers had his inning in the very next event—for fully equipped cars listing at from $2,000 to $3,000. It was "easy picking," the Racine man taking the lead on the second mile and thereafter making a procession of it.

Webb, in the Premier, took the five miles handicap from scratch after a pretty exhibition of driving. There were eight starters, Burman (Jackson), having the limit, 140 seconds. The race, however, was all between Webb and Freeburg (Buick), 35 seconds, the former winning on the last lap. In his heat of the five miles Wolverine Sweepstakes, Webb, who started badly collared Paul Albert & Co., in the last "firm" of B. Oldfield & Co., on the last lap and coming on the outside won in the stretch by a foot.

Coey had the fifty-mile event won when he overheated and lost his advantage. He was nearly two miles to the good when the trouble occurred and though he stopped and cooled off and then determinedly restarted, Burman (Jackson) had gained a lead too long to be denied. In the fifty-mile race on Saturday, Coey again overheated and was put out of the running. This race was won by Rogers (Mitchell) in 1:05:02. Burman led for 22 miles and then went wrong, after which Rogers was always in front and in no danger. Rogers again won the five-miles race for cars listing at less than $2,000 and took second in the event for cars priced above that figure. In the latter race, J. W. Bate ran into the rail and carried a part of it with him, but strange to say, neither man or machine suffered injury. The track was very dry and the dust so great that few of the spectators saw Bate's spectacular performance. The dust was so blinding in the State Fair handicap, which Coey won, that Webb, the scratch man, would not take the risk, and trailed behind all the way.

A 24-hour race in which nine cars had been entered, had been billed for Saturday, but overnight the owners of the Fair Grounds property had become alarmed over their insurance policies and it was called off. They feared the result of the lights necessary to illuminate the course at night. The fifty-mile race, which Rogers won, was therefore substituted for the long grind.

The summaries:

Friday, July 20.

Five miles for fully equipped cars, costing from $1,000 to $2,000—Won by J. W. Bate, 24 h. p. Mitchell; second, Crankshaw, 22 h. p. Buick; third, E. E. Schaeifler, 20 h. p. Jackson. Time by miles, 1:38, 3:01⅗, 4:24⅘, 5:48⅖, 7:12.

Five miles for fully equipped cars, costing from $2,000 to $3,000—Won by G. V. Rogers, 24 h. p. Mitchell; second, Charles Grant, 22 h. p. Buick; third, Ted Finch, 28 h. p. Pungs-Finch. Time by miles, 1:32⅕, 2:51⅗, 4:10⅖, 5:30, 6:49.

Five-mile open handicap—Won by A. C. Webb, Premier (scratch); second, H. W. Freeburg, Buick (35 seconds); third, Paul Albert, "White Streak" (65 seconds). Time by miles, 1:20⅘, 2:36⅕, 3:30⅕, 4:34, 5:36.

Five miles, Wolverine Sweepstakes, purse $2,500—First heat won by A. C. Webb, Premier; second, Paul Albert, "White Streak." Winners' time by miles—1:15⅗, 2:27, 3:27⅘, 4:36, 5.42. Second heat won by Barney Oldfield, Green Dragon; second, H. H. Freeburg, Buick. Winner's time by miles—1:19, 2:27, 3:34, 4:41¼, 5:41⅗. (Final run following day).

One-mile against time—Barney Oldfield, Green Dragon. Time, 56⅕ seconds.

Fifty-mile race for stock touring cars—Won by B. Burman, 40 h. p. Jackson; second, C. A. Coey, 50 h. p. Thomas. Time, 5 miles, 6:20; 10 miles, 12:15; 15 miles, 16:02; 20 miles, 26:28; 25 miles, 32:53⅗, 30 miles, 39:34; 35 miles, 46:05; 40 miles, 52:13; 45 miles, 58:34; 50 miles, 1:04:43⅗.

Saturday, July 21.

Five miles, for cars costing $2,000 or less—Won by G. V. Rogers, Mitchell; second, Zirbes, Mitchell; third, E. F. Schaeifler, Jackson. Time by miles, 1:14⅗, 2:19⅘, 3:28, 4:34, 5:36⅕.

Five miles for cars costing $2,000 or more—Won by B. Burman, Jackson; second, Rogers, Mitchell; third, Ted Finch, Pungs-Finch. Time by miles: 1:15, 2:20⅕, 3:28⅘, 4:33⅗, 5:36⅕.

Five miles, State Fair Handicap, open—Won by C. A. Coey, Thomas (3 seconds); second, H. W. Freeburg, Buick (12 seconds); third, Ted Finch, Pungs-Finch (1 minute 15 seconds). Time, 5:58⅕.

Wolverine Sweepstakes—Semi-finals at three miles—Won by Barney Oldfield, Green Dragon; second, C. A. Coey, Thomas. Time by miles, 1:10⅗, 2:14⅗, 3:18⅘. Final heat, five miles. Won by Oldfield, Green Dragon; second, Webb, Premier. Time by miles: 1:06, 2:06, 3:06⅗, 4:06⅗, 5:11⅕.

Fifty miles, open—Won by G. V. Rogers, 24 h. p. Mitchell; second, Zirbes, 24 h. p. Mitchell; third, B. Corey, 26 h. p. Queen. Time, 1:05:02. By miles: 5 miles, 6:31; 10 miles, 10:16⅕; 15 miles, 17:29; 20 miles, 24:38; 25 miles, 34:03; 30 miles, 40:43; 35 miles, 47:03; 40 miles, 52:50; 45 miles, 59:00; 50 miles, 1:05:02.

Tide Wins at Long Beach.

Some whim of fancy has turned unkind fate against the idea of automobile racing on Long Beach, N. J., it would seem, for when a score of entrants for the seven events on the card of the first annual beach race meeting of the Long Beach Country Club, assembled on the strand, Saturday afternoon, 21st inst., it was raining like Sam Hill. This was to have been the run-off of a meet originally planned for July fourth, and similarly interfered with, but the antipathy of the elements compelled a second postponement to next Saturday, July 28. Instead of an exciting race, there was furnished for the few hardy spectators who braved the rain, some little amusement after it stopped, in the spectacle of two cars stuck in the sand and savagely lashed by the rising tide,

Asbury Park Escapes the "Carnival."

Asbury Park, N. J., is to be spared the frost-encrusted "carnival" and "show" that for three years burdened Long Branch and provided the promoter with an addition to his rich fund of experience. The promoter, W. J. Morgan, had duly "connected" with Asbury Park folk and announced the formal transfer of the carnival to that resort. He had even set the dates—August 22 to 25. But this week he notified his seaside compatriots that all is off. He has been engaged to manage the Rochester road race on Labor Day and has other irons in the fire that are more seductive than the Asbury Park affair.

Club formed in Tarrytown.

The Westchester Motor Club has been organized in Tarrytown, N. Y., with twenty-one charter members. Among other plans forming, is that of a projected Labor Day hill-climb, followed by an endurance contest later in the fall. The following officers have been elected: President, R. A. Patterson; vice-president, R. E. Hopkins, Jr.; treasurer, Conrad Bolling; secretary, A. S. Le Vino; member of the executive committee, W. A. H. Ely.

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SIMPLIFYING THE VALVES

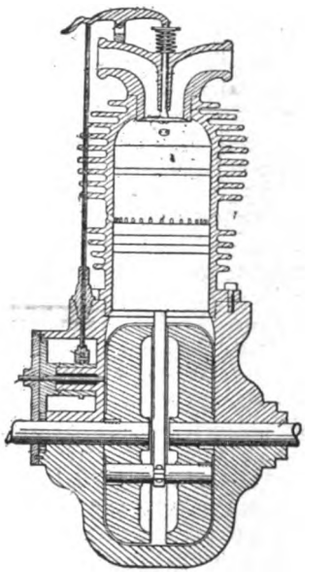
Recent Efforts in that Direction and Ingenious Devices that have Resulted.

That continued striving after greater simplification of the motor, which has caused considerable attention to be diverted to the two-cycle type, and which will not end until the internal combustion motor has been reduced to its lowest terms, has been responsible for many innovations where the four-cycle type of motor is concerned. But simplicity does not appear to mean the same thing to different makers; in the abstract it may well be taken to signify the smallest possible number of parts. One maker, however, assembles the valves on opposite sides of the motor because he thinks it is simpler, despite the fact that so doing renders an additional cam shaft and its gearing necessary. Another places them all on the same side for an identical reason, but the latter would seem to have more weight as a camshaft entire with its pinions is eliminated in this way. Still other makers combine the advantages of oppositely disposed valves with a single camshaft by placing the latter on top of the cylinders.

Though considerable extra mechanism was involved in this departure, still its chief claim in the eyes of its maker was to simplify, and so it goes. Many of the innovations are simple in themselves, but they entail such an added amount of complication to make them effective that the improvement achieved in the end is rather dubious, to say the least. Much of the inventive effort lavished on the internal combustion motor has been concentrated on the matter of valves and valve operation and what would appear to be a typical instance of adding two in order to eliminate one is embodied in the invention of a Canadian. He is Anson G. Ronan, of Toronto, Ont., and his claims which were filed almost two years ago, have just been covered by Letters Patent 825,867.

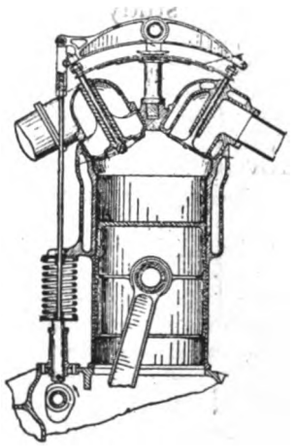
The details of the invention will be clear from the accompanying sectional illustration when viewed in connection with the patentee's claim, which is as follows: "A combined intake and exhaust valve comprising a casing provided with freely open branch passages which connect together and terminate in a common opening the lower edge of which is provided with a valve seat; the valve, a downwardly extending bearing for the valve stem; the valve stem held therein; a spring on said valve stem and on the outside of said casing, and two lugs forming part of said casing whereby same is held in place."

So far as the fact of its representing two valves in one is concerned it wil be seen that the device in question might be made to fulfill the requirements—by the addition of two more valves of some kind. Otherwise there would appear to be no provision whatever against air being drawn into the cylinder through the exhaust port on the suction stroke, nor against the exhaust



RONAN'S COMBINATION VALVE.

gases being driven out through the carburetter on the exhaust stroke. No mention whatever of this somewhat important feature of the invention appears anywhere in the patentee's claims, nor is anything of the kind in evidence in the sketch. Barring this somewhat fundamental objection to the



FIAT RACING VALVE GEAR.

device as here shown, there appears to be no reason why one valve cannot be made to take the place of two, as indicated, and to work efficiently if properly timed. The only drawback being that in the process of substracting one two will be added. It is to be feared that in doing his sums the inventor did not strike the correct answer.

Another instance of this tendency toward simplification by a reduction of the operating parts to the minimum is to be found in the valve gear of last year's Fiat racing car driven by Lancia in the Bennett cup race. This has also just been covered by patents on the other side. It goes without saying that there is no intention of classing this with the foregoing where practicability is concerned. As will be noted from the sketch showing this, both valves are located in the head—a position that is constantly coming into greater favor, and that they are slightly inclined. The latter also constitutes a practice that has received considerable attention during the past two years and has been adopted in several instances. Here all the advantages of oppositely disposed valves located in the head have been obtained, besides which not only one camshaft, but also one set of push rods has been dispensed with by means of the ingenious form of operating gear employed.

A column is tapped into the cylinder head between the two inclined valves and carries at its upper end a rocker arm at each end of which contact is made with a valve stem, thus also dispensing with push rods. The valves themselves are retained on their seats by a semi-elliptic laminated spring through the ends of which the valve stems pass, its tension being adjustable through the retaining nuts. It is held in place by the same column that supports the rocker arm. At the left hand side of the latter there is a lug to which is made fast the push rod actuated by the cam, upon the contour of which naturally depends the accuracy of the working of the device.

It will be noted that the cam and camshaft are concentric for a considerable portion of the former's surface so that during the passage of this portion of the cam under the rod no action of the latter takes place. In the drawing of this portion is indicated under the rod so that both valves remain seated. When the high portion of the cam comes uppermost it gives the rod a corresponding movement and causes the right hand end of the rocker shaft to be depressed to the same extent and with it the right hand valve. The other face of the cam is of a considerably smaller diameter than the remainder, so that it permits the push rod to drop under the impulse of its helical retaining spring and this imparts a similar motion to the left hand end of the rocker arm and its valve.

These are but isolated instances taken at random from the endless number of a similar nature that are constantly appearing. Ever since the automatic type of valve became a thing of the past on all but such a very small number of engines as to constitute an entirely negligible quantity, inventive genius has been at work attempting to solve the problem of operating the valves with but one push rod or with none at all, or better still, to evolve the valveless engine while still retaining the four-cycle method of operation. As in every other line of endeavor the search for simplicity has led to some queerly complicated substitutes, but that it will prove successful in the end seems assured.

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LIKENED TO LOCOMOTIVES

Railroad Man Draws the Parallel—The Chauffeur vs. the Engineer.

"Has it ever occurred to you," asked an old railroader, "that running an automobile was a task requiring as much skill and knowledge as the job of running a locomotive?

"Probably it hasn't," he resumed, without waiting for an answer, "and it wouldn't be so clear to me, either, but for the fact that I have an intimate knowledge of the locomotive and within the past few years have come to learn what it means to run an automobile. You see, I've had personal experience in both lines, so I can speak as an authority. And mighty few handlers of the three-foot throttle of a "mogul" freight have come down to tickling the little handle under the wheel of a car that goes by the same name.

"Not that the automobile and the locomotive have not been compared. Every time the gasolene machine hits a burst of speed or makes any old kind of a record, no matter what kind it is, the railroad is dragged forth to serve as a comparison and to be held up to scorn in the light of the automobile's achievements. Those fellows who figure that they rode 250 miles and back for a paltry $1.63 while the railroad fare is five times that amount, never include in the reckoning what the garage keeper is charging them for storage, repairs and supplies while they are away. But let that go; it's only the result of an overdose of what an old crony of mine always dubbed 'enthusims'. His kind came in a bottle.

"What I started out to tell you about was the way in which a raw, green hand who wouldn't be permitted to so much as touch the throttle of a locomotive until he had put in about two years at the fire box and then passed an examination, is allowed to run a car on the knowledge and experience he has picked up in less than thirty days. Anyone can pull a steam throttle, if he has strength enough to move the lever and if the brakes are off the locomotive will start. That is, it will if the precaution has been taken to throw the reverse lever way forward on its quadrant.

"Otherwise, whether it will start or not and in which direction will depend upon the degree of care exercised by its own engineer when leaving it. If he has done his duty the lever will be centered at the neutral point and the brakes will be set so that no amount of juggling with the throttle lever will make her start. But even the amount of knowledge that will enable a man to release the air, throw the lever into its proper position and get the machine under way will not qualify him as a locomotive engineer. It takes time and experience to do that. Some of them can break the fireman's back shoveling coal and still not get the best work out of the engine, while others will cover twice the distance on half the amount of coal. It's all a matter of skill and it doesn't come to a man all at once.

"Of course, an engineer's time is mainly occupied in watching the road ahead and running on signal-guarded rails gives him a great advantage over the man on the trackless road who never knows what is ahead of him. The fireman attends to the coal, water and steam pressure besides calling signals to him, so that he can concentrate his attention on the business of getting there. The carburetter acts as the chauffeur's fireman and except when he is alone there is usually someone to help watch the road ahead, so that the position of the two drivers is very similar.

"In a measure the responsibility is the same, for while there may be more people in the engineer's care, the value of human life is not measured by numbers and a wreck that kills only one person would be equally bad in the case of either. What an automobile can do in the way of damage to life and property when it comes to grief while running at a high rate of speed is only second to the worst of railroad wrecks in quantity, not quality, and what with the motor 'bus entering the business of smashing itself and its passengers, the railroad will not have a monopoly of disasters with lengthy lists of casualties for a great while to come.

"Whichever way the subject is approached, the difference in the responsibility of the chauffeur and the locomotive engineer is mainly one of degree and not kind, and the fact that the automobile may also injure pedestrians in addition to its occupants when it runs amuck, tends to lessen even this distinction. There is no getting away from the fact that while the state imposes heavy restrictions and prescribes exacting requirements for one calling, it makes none for the other, but to my mind it takes almost as much skill to handle a high-powered car well and keep it on the road as it does a good passenger locomotive.

"And on the whole, a great deal more painstaking supervision and care, for the engineer turns his machine over to the mercies of a wiper at the roundhouse every time he comes in, and the master mechanic or some of his assistants take a look about on their own account every now and again, just to see if there isn't something that the man in charge of the engine has forgotten to report. If the machine is in poor shape for any reason or other that he has not made known, he gets a reprimand and the engine goes to the repair shop. The chauffeur has no one to dog his steps that way and keep him up to the mark. Of course, it's for him to explain why the car will not run as well as it should, but in nine cases out of ten the owner does not know enough about the car himself to tell the difference. As long as it gets there satis factorily, that is all he is looking for.

"Take the matter of wages, too—or salary, I suppose you call it when you are speaking of a chauffeur. Only a gilt edge locomotive engineer gets one fifty a month; some get more, of course, but only a few and not many come up to this mark. If you could strike an average it would fall a long ways from it. A good chauffeur will hardly look at anything less and the chauffeurs' union has made a hundred the low water mark. But one has to work up from $40 a month at the coal shovel through a long apprenticeship and then hold on to his job like grim death while he watches his name slowly crawl up on the seniority list as the years pass, while the other jumps into the game, becomes a full-fledged and blossoms out into a high priced man all in a year or so—sometimes less. It certainly does beat all," he concluded meditatively.

How Wheels Hammer the Highways.

Wheels on a road have wearing effects largely depending upon the intensity of their pressure per unit area of surface. The intensity of pressure of the wheels of a loaded omnibus or other large vehicle is much greater than that of a steam roller, so that after a road has been properly made and steam-rolled, the wheels of heavy vehicles will "dig in" and form ruts. A roller, in passing over road metal formed of stones and sand, does not bear equally over the surface, but rests to a great extent on the stones, leaving the sand comparatively soft, so that heavily-laden narrow wheels easily cut the road up. A pneumatic-tired wheel having a yielding surface, exerts practically equal pressure all over its area of contact; while progressing over the road, it to a great extent absorbs any obstacles it may meet, and consequently does not hammer the road to anything like the extent an iron or even solid rubber tire does. The diameter of wheels has a great influence on the hammering action, as has also the efficiency of springing of the vehicles. A larger wheel occupies a longer period in rising on to and falling from an obstacle, and consequently the blow on the road is less than with the same load on the road is less than with the same load on a wheel of smaller diameter and the same width.

This Cop is a Real Wonder.

Automobile trapping as a business appears to be a calling that shortly develops a most remarkable degree of perception in its followers. An English policeman at a recent trial of the usual order, swore that he had become so expert that he could tell exactly how many yards away a car happened to be by the sound of its horn. Without putting him to any test to determine his ability in this direction, he was asked if a certain place on the road were visible from the local police station and was equally positive it was. When handed a photograph he could not explain how his wonderful eyesight managed to pierce a thick clump of trees that totally obscured the view in the direction in question.

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REPAINTING OLD CARS

Processes that Permit of its Being Done at an Old-Car Price.

After the touch-up and varnish job, cometh the vehicle that has faded and otherwise gone beyond the reach of the most expert colorist. Many automobile owners protest against paying but a slight advance over the customary touch-up-and-varnish job, and in order to meet these people upon their own ground and retain their patronage, the painter is often sorely beset. However, even these kind of jobs contain a profit, although it demands some sharp digging and a nice display of resourcefulness, says the Carriage Monthly.

When the automobile goes into the shop first, take an inventory of its parts, which inventory should be entered into a regular book kept for the purpose. All loose parts should in addition be properly tagged for later easy identification. Then examine the body surface to ascertain exact condition of the finish. If there are any old varnish runs, or sags, or dirt atoms obtruding which the ordinary soft felt rubbing pad, with pulverized pumice stone and water, will not obliterate, resort may be had to lump pumice stone or rubbing brick and water. This will generally suffice to smooth away ordinary surface conditions such as are named above. Occasionally, runs and sags are larger, and exceedingly obstinate, in which case to facilitate the work of reduction, take 1½ pounds of washing soda and dissolve it in six quarts of water.

In using this compound, the workman will need to watch closely to see that the alkali does not attack and saponify the varnish. It makes in connection with the pumice stone or rubbing brick, a very effective eradicator of all surface encumbrances. The main thing in getting a presentable finish with a coat of color, one coat of varnish color, and a coat of finishing varnish, such as this article is designed to describe, is to scour off the surface smooth and free from all surface irregularities.

The chassis, etc., should in the meantime be cleaned up, especial attention being directed to all greasy parts. Saturate cloths with turpentine, and with a common putty knife, go over the parts upon which accumulations of greasy substances are to be found, and make sure that these surfaces are clean and devoid of all foreign matter inimical to the paint or varnish. The runs and sags and the grease smears having been eliminated and cleaned away, the next step consists of washing the job very thoroughly and drying off with the chamois skin. Now comes the selection of the color or colors, as the case may be. In this selection, naturally, the owner of the vehicle exercises his choice, guided as a matter of policy, by the painter.

It is a good plan to have color cards at hand showing the latest popular automobile colors. The choice of color having been made, go over the body surface with No. 00 sandpaper, having a care to touch all places. Then dust off carefully and apply the color with a camel's hair 2½-inch brush, for the large panels, using a proportionately smaller brush for the small surfaces. If more than one color is used, lay the color in, leaving the molding until the last, these latter invariably being painted black. After coating in the body, next apply color to the chassis, exercising the same scrupulous care in laying the color on. An ½-inch camel's hair brush is best adapted for it.

The next coat should consist of clear rubbing varnish, into which is stirred enough of the color to maintain the original purity of the color. Handle the moldings as above directed. Give this coat forty-eight hours to dry in a room with a temperature of 75 degrees. Then rub out with pulverized pumice stone and water, using a rather soft felt pad for the purpose. Rub quite firmly and, above all, uniformly. Upon jobs which are finished over one coat of rubbing varnish, uniformity of surface is a two-fold consideration. The surface having been rubbed and washed up, the necessary striping is in order. Then finish with a varnish of requisite elasticity, high brilliancy and drying capacity that will carry it free from dust over night. This latter feature is important in a double sense, as automobiles require large room space, and the finishing usually has to be done in quarters where many other operations are daily carried on.

Between the above class of jobs and the touch-up and varnish job, there is a go-between, which may usually be done at a figure to catch the most exacting automobile driver. This is simply, after rubbing down for the color as already directed, applying one coat of color, striping, if required, and finish. For this class of finish, we advise the use of a heavier body finishing varnish—a varnish, say, to correspond to the hard drying body varnish which manufacturers have for many years put on. Such a varnish, because of heavier body, stands out better over a surface lacking somewhat in the finer points than the more brilliant but thinner varnish.

Fruitful Cause of Short Circuits.

Short circuits frequently develop in a most unexpected manner and prove extremely difficult to locate. One fruitful cause of trouble of this sort is the fine metallic dust which is burned and shaken from the surfaces coated with aluminum and other metallic paints. This quickly seeks out all the little nooks and crannys in the ignition system, causing grounds and short-circuits, and usually is almost impossible to locate. Yet once discovered, it may be got rid of by the vigorous and well-directed use of the tire-pump.

HARD-ON GARAGEMEN

Caustic Advice of an Owner who Cites Instances in His Own Support.

"Whenever you are so unfortunate as to have to send your car to the shop for an overhauling that drags out over a week or two so that you are deprived of the use of the machine for a fortnight or more, here is a good bit of advice for you," said an old-timer to a Motor World man recently. "Keep it in mind and see if it isn't as valuable as I claim it to be. I'll tell you how I came to learn it and learn it mighty well at that, and probably you'll see the force of it.

"I had sent my car to a garage for one of those 'thorough overhaulings' that some of the repairmen claim to give a car every time it comes into their possession. They may tinker five or fifty minutes over the car—it does not matter much how little time they put in on it; so long as it runs O. K. until they can turn it over to the owner again, it has been overhauled. This was not of that kind; it was a real overhauling, the engine had been misbehaving for some time and I thought it was better to do the job up brown while we were about it.

"So I went over all the symptoms with the repairman and was assured that everything that was in any way in need of attention would receive it and be put in proper shape before the car was permitted to leave the shop. The job was to be done in three or four days, but it was closer to three weeks before I saw it again. I did not have to go to the shop for the car as it was delivered to me and the mechanic who turned it over to me assured me that everything was running fine. He had brought it up a long hill on the high gear that I had always found it necessary to drop into low in order to get over. Everything was lovely, according to his version.

"The way she started off on the first turn of the crank seemed to confirm it and as I had some people with me to take out to the house from the station that night, I was glad of it and looked forward to a quick and pleasant run. We started away in good shape and covered about a mile in fine time and then the engine 'died' all of a sudden without the slightest warning. Ilooked at the switch—it had a habit of joggling loose at times, but it had not moved. The car is one of those with the 'innards' all under the center of the body, so that you have to dump your passengers out, bag and baggage and throw out the seats into the road before you can get at the machinery. The starting crank does not catch the end of the motor shaft directly as is customary on most cars, but turns the engine over through the medium of a chain and a pair of sprockets and it only took a glance to see what was the matter. Those sprockets are only pinned on their shafts and the pin had drop-

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ped out of the upper one letting the wheel and chain fall onto the contact breaker, short-circuiting it and putting everything out of business in a jiffy.

"So many things are held together on that car with taper pins that I always carried a stock of them, and it was only a matter of five minutes' work to get that sprocket and chain back in place. Then it was only necessary to restart her to get under way again. I gave two or three twists of the handle, but the one turn performance of only ten minutes previous at the station was not forthcoming. I gave another strong twist to get her over compression quickly and something else gave way letting the starting handle twist around loosely in my hand. The pin that made it fast to the end holding the sprocket had sheared off.

"Then I was in a fix; the supply of taper pins held good, but since my first experiences in sending a car to a shop I have always carefully removed the tools before leaving it there. It is the only way to be sure that some of them will not be missing when you need them most. In that case I had removed them to save them as usual and they were safe, too, but two or three miles away. There was no way that I could get the old piece of the pin remaining in the shaft out of it, so there was no alternative but to knuckle down and get the engine going by turning over the flywheel. And I certainly had to knuckle—there was no question about it. Where she had previously started on the first turn, I had to turn her over twenty or thirty times and every turn was a task itself. And a false alarm, when she would make a feint at getting under way, occurred just often enough to make things more interesting. Finally, however, I got her under way and got home without further trouble.

"But two or three days later I started off on a short run. There was a heavy storm brewing, but I thought I could run away from it as I was only going a few miles. It was after sundown and pitch black. Before I had got half a mile the engine began to miss and finally stopped for good. The symptoms were those of lack of current and the first look for trouble showed a loose connection. Unfortunately, the motorist's vade mecum—his pliers—were missing and the small milled nut on the dry cell was made as tight as fingers unaided could turn it. A new start was made, but almost before the car could be gotten under way the engine had stopped again. Search in the same place revealed the same cause. Another loose connection. There were six cells or fully a dozen binding posts and every one of them was so loose that it jigged around with the vibration every time the engine turned over.

"Three of them were so loose from imperfect threads that they absolutely refused to stay on without assistance. All this time the thunder storm had been coming up quickly, so were were afraid of being caught in a downpour at any moment. We headed the other way round and were only too glad to run the half mile back by lifting the seat and sitting on the edge of it while one drove and the other kept both hands busy preventing those nuts from coming off.

"All that trouble in both instances was the result of not heeding the piece of advice I started to tell you about, but haven't even mentioned so far, and that is to give the car a pretty thorough overhauling yourself after the garageman has got through with it. That tapered pin which dropped out of the sprocket had only been shoved in with the finger and then the garageman's attention was called to something else so that he forgot to tap it home. And that was the case with the batteries, too. They were new cells and the boy who put them in screwed the connections up with his fingers and let it go at that. I was the victim in both cases. It cost me no end of trouble and loss of patience to find out that those petty little things were loose, but after I had put a new pin home with the machinist's hammer and practiced on the binding posts of the cells with a pair of pliers, as should have been done in both instances in the first place, they never troubled me again.

"Don't take the garagemans' word for anything. If he tells you the engine runs like a song, don't you believe it. Don't believe it even when you see it running—not until you have put a wrench on every nut that he has had anything to do with and see that he has not forgotten to tighten any of them up. Otherwise, they will hold while the engine runs in the garage and the strange thing about it is that they will hold there indefinitely. Take the car out on the road and before you get a mile away they will begin to drop off and then you can only cuss the cause of all your trouble at long range. And take my advice, run your hand over everything in sight and everything you can think of, unless you want to pay the penalty of some other fellow's carelessness."

Trouble with the Trembler.

In seeking the cause of a roadside stoppage do not overlook the trembler of the induction coil simply because it worked beautifully when you left home but a few hours previous. To the lay mind the vagaries of the trembler or vibrator are something that is far beyond mortal understanding. Sometimes it will be found that where no amount of adjustment and cajoling sufficed to effect the desired result, a slight tap of the finger has started the vibrator buzzing and it has continued to operate for hours steadily thereafter. In fact, it may give no further trouble over an extended period. Take a look at the vibrator on general principles unless it can be heard to buzz in no uncertain manner every time the engine is turned over compression. Fallibility is the quantity of the human equation, and tightening the set screw after having made a satisfactory adjustment is one of the things that is apt to be overlooked.

Hardness of Nickel Steel Valves.

One of the chief difficulties with nickel steel valves which have now become so common is that when being ground in, they are hardly touched by the grit. As a result of this, the seating is ground to excess, while the valve itself remains intact, and on this account, it sometimes is very difficult to get a gas tight joint. Also, in regular use, the same principle applies, whatever burning action takes place, being apt to strike into the seat, leaving the valve in good condition. All of which would be well, were it not for the fact that the seat cannot readily be renewed. On this account some makers still adhere to the cast iron or mild steel valve head, while others advocated the use of the steel valve, regardless of this particular effect. In grinding such valves, it should be borne in mind that the hard surfaces are not readily affected, and the seat watched with the greatest care for the indications of a good joint.

Made the Iron Grow.

Many a farmer believes that stones grow in fields both in size and in number. The idea that iron can be made to grow by simply heating and cooling seems to require just as much credulity; but the fact that the Franklin Institute of Philadelphia has awarded a gold medal to a metallurgist for demonstrating this phenomenon should remove all doubt. The experimenter took a bar of iron of known size, and repeatedly heated it to its "critical temperature" (785 deg. C) and cooled it, with the result that the volume increased by the extraordinary amount of 45 per cent. The appearance and texture of the metal did not sensibly alter during this expansion process, and, of course, the weight remained constant.

The Story of the Shah's Car.

The Shah of Persia recently received his first car, and this is the story that goes with it. Upon unpacking it, the imperial was wild to see it in motion instantly, but there was no gasolene to be had and the royal desire could not be complied with. The Shah clamored and the court became alarmed, but nothing moved. But once things were made clear, he wished to know what the nature of the mysterious fluid was and on being told, ordered that the tank be filled with some choice vintage of a generation or two ago from the royal cellars, and in a short time the car was running on a special brew of fire water.

Platinum melts at a temperature of from 3,200 to 4,000 degrees Fahrenheit. From this the motorist who finds that the vibrator terminals of his coil have been fused may gain some idea of what is meant by a "hot spark."

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TRUCKS WITH SIX WHEELS

Features of that Form of Construction and Advantages Claimed for it.

A type of construction for heavy duty vehicles which has achieved some little esteem in France, although quite unknown here, is that of the six-wheel mounting, in which the load is divided equally between three axles, steering being accomplished either through the turning of the two forward pairs of wheels, which are mounted on a sort of bougie truck attached to the chassis, or by the manipulation of the front and rear wheels simultaneously, driving being done through the middle wheels only. This type, as illustrated in the Robin-Janvier machines, has recently come into somewhat greater notice than formerly, through its performance in the Paris-Tourcoing industrial vehicle trials.

M. V. Janvier, the constructor of this machine, employs both the arrangements indicated in his product, the former for heavy burden bearing machines, and the latter for a new type of omnibus which he is just producing, and for which he claims the advan-

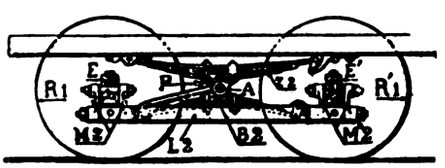


Fig. 2.

tages of direction which come with short wheel base, while the vehicle may be made very long indeed without overhanging the wheels. The method of suspension which is unique, embodies a modification of the methods applied in locomotive construction in the use of heavy equalizing couplers, its adaptation consisting in the insertion of an ample number of universal joints to allow for the vertical working of the wheels without the disturbance of the body or its load.

In the double bougie construction referred to, the fore pairs of wheels are mounted and connected, as shown in Figs. 1 and 2. Four sets of steering knuckles are employed, the connections between them being worked out in such a manner that any deflection of the steering wheel secures the proper angle for swinging the chassis through the desired curve without slipping any of the tires. Incidentally, it may be observed that the connecting rods are articulated in such a way as to permit the wheels to rise and fall in accordance with the road conditions, without straining the parts or altering the direction.

Each of the axles E, E', is yoked by universal joints at M2, to one end of each of the balance beams L1, L2, which thus serve as reach rods, and also carry the load by means of the inverted semi-eliptical springs B1, B2, carrying the spindle A. This latter serves as the pivot of the main suspension, which is vested in the semi-eliptical springs r1, r2, which are shackled to the chassis in the usual manner. By this means the raising of any one of the wheels, since the spindle A is midway between the two forward axles, produces a lift of the end of the chassis of only one-half the distance, which is reduced to one-fourth at the centre of the machine, or half that which would occur

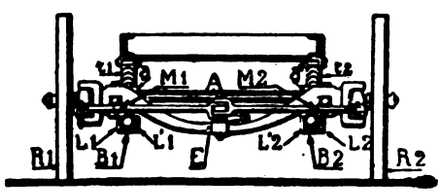


Fig. 1.

similarly on a four-wheeled machine. This feature is considered by the makers to be a most important one, inasmuch as it greatly reduces the amount of working of the chassis and jolting of the load when running over rough ground.

Aside from the evenness of the support of the load on the wheels, it is claimed that the construction greatly reduces the tendency to skidding when rounding turns, and permits of turning at greater speeds than otherwise would be possible, owing to the fact that four points of support are given to the forward end, which by this means, maintains its stability, no matter what may be the deflection of the wheels.

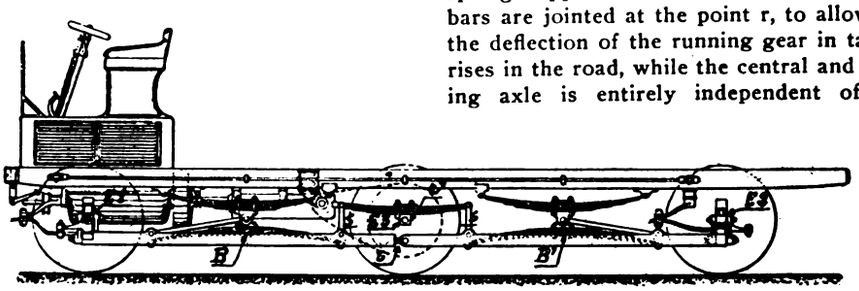


Fig. 3.

The latest vehicle of this pattern, which was designed for the use of a flour-milling concern in Austria, is figured to carry a five-ton load up a gradient of 12 per cent., or one of seven tons up grades of not more than 10 per cent., at speeds of seven to nine miles an hour. Like a railroad freight car, the main frame extends over all, not even the starting handle protruding beyond the cross sill in front, by which means great resisting power in case of accident is secured. The power plant consists of a 24-30 horsepower vertical motor, mounted in front under the driver's seat, the latter being by this means raised above the level of the top of the load, giving the operator a clear view both fore and aft. Either gasolene or alcohol may be used as fuel, the carburetter being designed with this in view. Ignition is by low tension magneto, and the motor speeds range from 250 to 1,000 revolutions per minute.

A three-speed sliding gear transmission is provided in a gear box of ordinary pattern, while near the counter-shaft is a gear-reducing box, through which a second supplementary reduction may on occasion be obtained, giving a total range of no less than six speeds in all. Double chain drive is provided for the final transmission, the entire driving effort coming through the rear wheels. And, with all due respect to the theory of the six-wheel mounting, it is to be observed that in this application, most of the load comes on these wheels. Two sets of brakes are used, one, pedal applied, acting on drums in the line of transmission, while the others, applied by a hand lever, act on external drums affixed to the driving wheels, and consist of wrapped wire cable, making a powerful and certain method of restraint.

The method of framing employed on the 'bus type of chassis, gives a better distribution of the weight, and also still further carries out the application of locomotive construction. As shown in Fig. 3, the equalizers are articulated with the front and rear axles at the points E1, E2, precisely as in the former instance, while the back-to-back spring support is obtained at B, B'. The bars are jointed at the point r, to allow for the deflection of the running gear in taking rises in the road, while the central and driving axle is entirely independent of the chassis and is shackled to the equalizers at S-S, an allowance for unequal deflection of the ends of the spring E3, being obtained by a trunnion mounting of the spring, and its position being maintained by suitable distance rods.

Otherwise, the design is similar to that of the truck already outlined, the extension of the steering reach and shortening of the line of transmission being the only important mechanical alterations involved. The front and rear wheels assisting in the steering, it is evident that the likelihood of skidding on slippery roads is materially lessened. The suspension, giving a balanced mounting for the load, makes the latter far more stable than is the case with the ordinary four-wheel chassis. And the placing of the driving gear in the centre, serves to compact the active mechanism, which is an advantage, at the same time securing ample tractive force at all times through the assurance of constant adhesion.

The merits of triple axle mounting are worth studying to an extent which has never been done in this country. In balance of the load, stability of the chassis and positive guiding action, a degree of excellence is to be obtained, which probably is not achieved in any other way. Yet, on the other hand, the proportionate increase in the mechanism of the running gear, the subdivision of the steering function, and the added complication of the machine in gen-

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eral, constitute drawbacks which must be proven worth while before the system can become really useful. The problem of increasing the carrying capacity of commercial vehicles, however, is one which shortly will begin to trouble the designer to a greater extent than now is anticipated, and in this connection it is not at all unlikely that the principle here outlined will come in for definite consideration.

No Overalls in St. Louis Parks.

Somehow the spirit of the guardians of New York's Central Park has permeated even as far as Missouri, where in St. Louis, the decree has just gone forth that henceforth automobiles piloted by mechanics clad in jumpers and overalls shall not be permitted to cloud the aesthetic atmosphere of Forest Park. Park Commissioner Aull has been sorely tried of late by the sight of numerous cars driven by mechanics, and presumably being "tried out," running through the shaded avenues of that secluded enclosure. He came to the conclusion that it detracted somehow from the dignity of the place, and so, like the cops in Central Park, New York, the St. Louis police will strive to keep Gaspar and Henri away unless they are wearing their "good clothes."

Men who Own Many Cars.

According to the latest statistics, John Jacob Astor's "stud" of cars is still the largest in this country. He has registered 31 cars in all, only four of the registrations having been cancelled. Frederick G. Bourne comes next with 20 registrations of which 5 have been cancelled, while 18 registrations, all of which are still effective, stand to the credit of W. K. Vanderbilt, Jr. George Eastman, of Rochester, is credited with 11 registrations in force.

Will Cease Testing on the Road.

Owing to the comment which has been excited on account of the reckless use of the streets of Jackson, Mich., by testers from the automobile factories, the Buick Motor Company has decided to install a private testing track on its own grounds, and will permit no more testing to be done on the highways. The action was directly caused as a result of a recent accident in which an employee of another factory seriously injured a pedestrian.

Two Sides of the Dust Evil.

Speaking of the dust nuisance in England, which the anti-motoring factions have been holding to be destructive to crops, an exchange wittily points out that a powder hardly as fine, no whit richer in its properties, and far more troublesome to apply, is regularly bought by the same agriculturists and applied with the worthy intention of stimulating the growth of crops which the dust is supposed to spoil.

California Law Receives a Rap.

That the State law relating to the speed of automobiles does not apply within city limits, is the apparent tenor of the decision of Judge W. P. James, of the Superior Court of California, sitting in Los Angeles, in releasing Bert Dingley, driver of one of the Pope-Toledo cars in last year's Vanderbilt eliminations, on habeas corpus proceedings after his sentence to fine and imprisonment. Dingley had been convicted three times of violating the ordinance which prescribes a speed of not more than fifteen miles an hour, and had been sentenced to pay a fine and spend one day in jail.

Judge James's decision releases him from custody, and reverses the decision of the lower court. The ruling is that under the freeholders' charter, the general law is inapplicable within city limits, as the speed regulation on the public highways is a "municipal affair."

"The statute under consideration is complex in its multifarious restrictions, regulations and exceptions," said the court. "Other points are made touching some of the questions which are suggested by its varied provisions, but which it will be unnecessary to notice here.

"In so far as the legislature has attempted to prescribe a rate of speed for motor vehicles within cities operating under a freeholders' charter, the effort is ineffectual; that matter is a 'municipal affair' which by the constitution is subject to local regulation and not that of a general law."

Workings of New Jersey's New Law.

New Jersey's anti-automobile department is now in smooth running order with all of its complicated machinery well adjusted to the work. J. B. R. Smith, commissioner of motor vehicles who is the main cog, has issued a statement showing that since May 7, when the offices were opened for registrations, 8,206 machines have been licensed and 11,252 drivers enrolled. The revenue from these registrations has amounted to $40,238, the sum total of fees received. This is to be turned over to the State treasury, to be used in repairing the highways. Since the first of July, three drivers' licenses have been revoked by the commission, an order making permanent denial of another has been ratified, and ten other cases are being held for final action under temporary orders. Incidentally, it is stated that some 40 drivers from outside the State applying for licenses have been refused, because of infractions of the law committed since the first of the year.

Connecticut Road Closed to Motorists.

Connecticut's proudest antiquity has asserted itself at its boldest by forbidding automobiles the use of the only highway in the State, where toll is still collected. The decision has been given out by the North Canaan Bridge Company, which owns the bridge on the road between Canaan and Twin Lakes, and Falls Village. The alleged reason for the move is that owing to the narrowness of the road, drivers of horses are accustomed to go miles out of their way rather than run the risk of meeting machines. It is whispered, however, that horses net larger returns than do automobiles, and so hereafter, no horseless vehicles will be permitted to cross the bridge.

Trapping on a Decent Plan.

Magnolia, N. J., boasts a rarity in the person of 'Squire Folk Klein, a local justice of the peace, who has just announced the opening of a most unusual warfare against the motorist. The police trap will be used, of course, but such is the 'Squire's tenderness of heart that he fears lest the catch shall be so great that his conscience will not allow him to "take the money." Consequently, he proposes to announce through the columns of the daily papers the exact location of each trap, together with the times when it will be in operation. By this means, he will be certain that any offenders caught breaking the laws, will be of that hardened and offensive type which needs curing. All comers will be timed as they pass the measured stretches, and their numbers taken down. If they have been running at an excessive speed, they will be summoned later, and treated according to the merits of the case.

Buffalo to Begin a Crusade.

Following a joint conference between Mayor Adam, of Buffalo, President Meldrum and Secretary Dai H. Lewis, of the Buffalo Automobile Club, and Superintendent of Police Regan, held at the office of the mayor, Sunday, 22d, inst., it was announced that new measures would be taken for the enforcement of the automobile speed law. According to the scheme worked out by the officials and representatives of the club, a house-to-house and garage-to-garage canvass of automobiles will be made, to see that all in the city are properly registered and numbered. Thereafter, every policeman posted on the street, will have special orders to warn any driver observed exceeding the speed limit. In case the offender fails to slow down, his number will be taken which identification will be used in convicting him later.

How the Thief went Touring.

A thief exploited himself recently in France, who had a habit of taking an automobile in one town, driving it rapidly to another where he sold it or deposited it for repairs, and stole a second, which he drove to a third town, and so on. In this way he made a rapid and somewhat startling progress from one end of the country to the other until apprehended on an incautious visit to one of his former stopping places. In this manner he did a very respectable amount of touring in a short time, and also secured a neat revenue in addition to his living expenses.

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PLEA FOR FIGUREHEADS

It Comes from Abroad and Apparently is Serious—Some Suggestive Designs.

Being to a certain extent, the successor of the horse-drawn vehicle upon the road, the motor car suffers somewhat by comparison with that vehicle, and constantly is referred to it as a criterion, unconsciously or otherwise, whenever the question of appearance arises. This is inevitably the consequence, because up to the time of its popular advent, the carriage was practically the only type of vehicle to be seen on the public highways. Hence, the eye accustomed to seeing the animal at the fore, finds something lacking in the brunt of the motor vehicle, while other portions of the machine are invariably compared to the same standard.

This has been, and is, most unfortunate in hampering the designers of the motor vehicle, since it compels them to follow in part the traditions of a type the intent of which was totally different from that with which they are dealing. But the influence of this factor upon the public mind is even greater than it is upon those who deal directly with the problem involved, and who therefore have a counterbalancing tendency in the actual physical needs of the machine in contradistinction to those of the inert vehicle. Hence, according to the common way of thinking, there is something always lacking about the automobile, for which no amount of paint and varnish can atone. The feeling is almost universal, though not always recognized, and it crystalizes in expressions of disgust at the so-called monstrosity of the motor car.

Perhaps the most lucid expression which has been given to the idea, emanates from the columns of one of the London weeklies, and the utter absurdity of the sentiment, natural though it may be, is revealed in the suggested use of figureheads, as a successful and ornamental remedy for the hiatus. The writer commences bemoaning the lack of aestheticism in automobile design.

"The motor undoubtedly appeals to the ear; unfortunately, it too often appeals to the nose; will it ever appeal to the eye?" is his query. Then, after relating the mental process by which the eye has come to be used to the machine as it now stands, he points out that all along the lines of beauty are lost by the removal of the horse.

"Can nothing be done for it? Why not a figurehead?" he wails. "Why not have something pretty, something that at any rate represents something, in the place where the beauty of the thing, the horse, used to be? What good would it be? Well, no good, to a man who has one eye. What good was a figurhead to a ship? Yet for appearance sake a car wants a figurehead more than a ship, for the ship form naturally converges in front to a beautiful finish. The clumsiest ship, even the homely fishing smack, has none of the unpleasant effect produced by the abrupt, cut off, straight line that makes a motor's front. A motor suffers from having no physiognomy. But every ship, as every locomotive engine, has a distinct physiognomy. And a figurehead would make up for the deficiency in the motor. But figurheads, somebody may say, were not merely ornamental in ships; they helped description and identification. Precisely, and they would do the same thing for motors; a consideration which will perhaps appeal more to the public than to the motorist.

"But think what a field this opens up for heraldry. Arms and crests, which now, as Oswald Barron has proved so cruelly, have none but antiquarian significance, become alive; they might almost be useful. There would be quite good sense in a man's motor carrying his crest as a figurhead. What glory to be able to mount a life-sized golden eagle contemplating the sun, or rather the clouds in England. Or a golden lion erect, rampaging fiercely in the air. There is the danger. The rich cad would so flaunt his figurehead that gentlemen would be shy of showing one. But for once let the decent people hold their own and decline to be pushed off the road by the vulgar hostler. A standard of good taste would grow up and become established.

"From the points of view of appearance, figure-heads, artistically wrought and fitted, would be capable of great things. An eagle, wings full-speed, paradise bird, Valkyrie; there is room for endless variety of design. The emulation among motorists would be great. We could have shows of figure-heads. Think of the work for artists to design them; and the industry their making would stimulate. Would they interfere with speed? That would depend on their fitting to the car; they should not. Of course, if a man in his zeal to be conspicuous puts on a colossal golden elephant, his speed will be retarded; but a reasonable Pegasus, say, with wings drawn back at the right angle to cut the air, would be no encumbrance."

Death Due to Meshed Gears.

A gruesome demonstration of the folly of leaving a car with the motor running and the gears in mesh, however good the brake may be, occurred in Houston, Texas, recently, when eleven-year-old Charles Moody was crushed by his father's car at his home, 94 Laflin street. The chauffeur, Frank Allen, had been cleaning the machine, and left it for a moment to get some tools from the stable, when the boy began to tamper with the levers. Accidentally, it is supposed, he threw off the brake starting the car which, in some way, caught him between one of the wheels and an upright of the building. Hearing his cries, the driver rushed to his assistance only to stop the motor in time to have the lad fall dead in his arms. His back had been broken.

WHEN STARTING-GEAR BROKE

It Led to a Variety of Experiences, all of Which are Duly Related.

"Did I ever tell you tbout that experience of mine the time we broke the starting gear?" asked the amateur, settling himself in the capacious armchair, in a manner indicative of still aching joints. "A bit sore yet," he remarked casually, noting the look of inquiry. Then receiving a reply in the negative, he began on his tale of woe.

"I've often wondered if every man who owns a machine finds life so chock full of instructive experiences every time he essays a little trip," he remarked, by way of preface. "Of course, your friends are everlastingly telling you how beautifully their cars perform. And that's one of the worst evils of motoring, I think. It begets a facile habit of lying. You hate to admit that you had to tinker the machine seven times in less than fifty miles running, and you don't even begin by telling those little ones that the girls call fibs, you swallow the whole thing at a gulp and behold, you are a full-fledged disciple of Annanias right off the reel.

"But after a while you begin to see a great white light. It dawns on you gradually when suddenly you come across the other fellow tinkering something or other at the roadside. Formerly he has confined his attention of this nature to the seclusion of his barn, or if he did get caught on the road you did not see him. After you have caught one or two of your friends red handed, so to speak, particularly if you have caught the same friend two or three times hand running, it is not so difficult to enter into a heart to heart confab with him, and then like him, you will only report 'beautiful runs' to those who are no better off than you were before the bottom of the other fellow's story dropped out.

"But all this philosophizing on the subject of automobiles in general and automobile liars in particular, has no bearing on the story I started to tell you. That was a case where you would be only too glad not to hide your light under a bushel—not because it was only one candle power and a pint measure would do, but because you thought it was a searchlight and you wanted everybody to see it. You see having the starting gear go wrong is no reflection on the man who runs the car. It is one of those unavoidable accidents that a man is forever praying he will not be the victim of far, far out on the road sometime. But if he happens to be, why it is a feather in his cap if he showed himself genius enough to get the better of it after all and get in despite it. He isn't keeping quiet and glossing things over then, not by a long sight. He has become a real chauffeur or maybe a

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mechanical genius in his own opinion and he wants everyone to know it.

"Well, that was about the kind of an accident that happened to me. I started out bright and early last Sunday morning with a select party of congenial companions. We were out to have a good time and, like a great many people who delude themselves into the belief that they are having a bang-up time every minute they spend in an automobile, they are not happy unless the car is going for all it is worth. Having a good time with them means burning up the road and keeping out of the clutches of the law and some of those fellows become so adept at it that they can positively smell a policeman or a constable over the brow of a hill. I never saw anything to beat it. They will be hitting a good forty-mile clip or better on one stretch and half a mile further along the car will hardly average the decorous ten per that makes an automobile look slow by comparison with some funerals. The 'copper' is wise to the practice in a good many cases, but what can he do?

"We let her out every chance that offered and we simply ground the anti-speed laws to pulp on every occasion that we thought there was no danger of it costing us anything.

"That's just about what we did. Let her sizz every time we got half a chance and as she carries 30 gallons of 'juice' and runs cool, we didn't have to slow up for anything but crossings and suspicious spots. We made the run out—about a hundred miles, in better than railroad time and its a trip worth taking. You wouldn't think it possible to get into such truly rural communities within such a short distance of New York. But coming back more than paid up for the uninterrupted run the other way, and all on account of such a simple thing. It was enough to make a saint blaspheme to think of being held up through such a trivial cause.

"It was all my fault I suppose, for if I had been a little more adept at gear shifting it would not have happened. We came back a different way that we went out and it was pretty hilly with most of the grades against us and some of them were pretty stiff, I tell you. And it was on one of those stiff ones that we met our fate in the shape of a broken starting gear. We were running on the high when a rise loomed up in front of us suddenly as we rounded a bend, so that we had no chance to rush it and the road back was not as good for speeding as the one we had gone out on in the morning, so that we were not making as good time.

"It was the pride that the good book says 'goeth before a fall' that was my undoing. The rise was not very long, but it was uncommonly stiff. Still I thought I would show my friends a little more of the car's ability by taking it on the high. With a good chance to rush it we might have got over, but as it was, the engine slowed way down before we had gone fifty feet, so stiff was the grade. Acting on the advice you gave me last time, to always shift quickly the moment the engine shows signs of slowing, I tried to keep the clutch out with one foot; prevent her from sliding backward down hill with the other foot on the pedal brake and shift the gear. Easy enough to disengage, of course, but the rub was in getting into the low. I simply couldn't strike it.

"Pressing both feet hard against the pedals and trying to manipulate that dinky little gear changing lever put me into an awkward position. You remember how you cussed the shortness of that same lever the time you ran the car to Poughkeepsie, so you can realize the situation. I couldn't hold the heavy machine back on that grade with the pedal brake alone, so that the gears were revolving as the car slid backward and no matter how I jabbed at them they simply would not mesh.

"Why didn't I put on the emergency, then shift and restart from a standstill?

"Well, why didn't I? My first idea was to change on the run, of course, so as not to lose the car's headway, and then I suppose that way never occurred to me. It is mighty easy to see a dozen slick ways out of a tight place when you're sitting in an armchair, but when you're in the hole, affairs have a different complexion, as the diplomats are fond of saying.

"With both feet and one hand working overtime, I had the other one on the throttle to open her up the minute I did get into gear. If the box had been of the selective type, it might have never have happened, either, but it wasn't. It was the straight slide with the high furthest forward and in wiggling it back and forth to try to engage low, I must have shoved the lever clean through the intermediate and into the high without realizing it. That and the brake did the business. The engine stopped as if it had been shot and the friends began to get alarmed. Then I did what I should have done in the first place when I found so much trouble in shifting—backed down to the foot of the hill. Merely stalling on a hill was nothing serious so I manipulated the spark lever to start her on compression but as luck would have it, without result.

"Then I got down to the crank. I was 'the cook and the captain, too'; there wasn't another one in the party who knew the rules of the game. So I worked while the others looked on. I took hold of the crank, carefully engaged it on the end of the shaft and prepared to show my friends how only half a turn was necessary to start. I gave it a yank upward and something gave and it didn't take more than one look to see what it was. The socket on the end of the crank had twisted off just as nicely as you please. The crank was then about as much good to me as a stick of wood. I went back to the wheel and tried manipulating the spark lever again, but there was no response.

"I explained the situation and there was the usual flood of simple questions accompanied by serious looks. Time dragged heavily and still we waited but nothing put in appearance. Then I suggested giving the machine a push along the road and getting started that way. It was impossible to think of pushing her up hill and the road was very narrow so there was nothing for it but to push backward and try to get her going on the reverse. Of course, I had to take the wheel and handle the levers. The four others piled out and got her moving a bit, but the moment I engaged the reverse she came to a dead stop without turning the engine over at all. Too much leverage, of course, on such a low gear, but then there's no high on the reverse. And there was no hill within reaching distance back of us that we could let her slide down, nor any houses from which to obtain a horse, and the flywheel is encased so that there's no way of getting at to turn her over that way.

"After everyone of the party but myself had become thoroughly exhausted in trying to get up sufficient speed to turn the engine over by pushing the car backward without the slightest result, we sat down again to wait—on the grass and on the steps, anywhere to be in the road to flag the first car that came along. It was a lonely spot and the chances that any car would come along there did not seem over alluring. They dwindled steadily as the light faded. It was almost dark when all of a sudden the chug, chug of a one-lunger sounded not far down the road from us and in a minute one of those little runabouts hove into view. It was not what we anticipated, but it was relief anyway.

"A local tinker owned the machine and he didn't have to be told to stop. He came to a halt and volunteered his services without delay and informed us incidentally that we were on a back road that was very seldom traveled. He took it occasionally because it was a short cut, but otherwise we might not have seen anything on it in a week. All of which was cheering information, particularly as we had our doubts about the ability of his 'cougher' to pull us at all. We explained the difficulty to him and out of a box full of odds and ends of every description he hauled a good sized piece of rope and made fast. That little machine was seedy looking, but I think it could almost have pulled us up the hill. It walked right back with us in tow and I had the engine going and the reverse out of mesh again before we had covered twenty feet.

"We took the rise on the low without any trouble and looked back, expecting to see our relief corps slowly struggling up, but he had made it about as fast as we did. We waved him a farewell from the top and got back to the main road again as fast as we could and I changed back on the low on every rise we tackled on the way home. One experience of that kind was enough to hold me for some time."

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The Week's Patents.

825,157. Wheel. Charles W. Pradeau, Shepherd's Bush, London, England. Filed Sept. 30, 1905. Serial No. 280,801.

Claim.—1. A spring-wheel for motor-cars and other vehicles, each spoke of which is provided with a hollow cylinder containing a spring-plunger, the outer end of each plunger being formed into a fork to which is pivoted a crank-piece carried by a bearing-bridge attached to the outer rim for the purposes set forth.

825,176. Brake. Richard W. Bainbridge, New York, N. Y. Filed Dec. 13, 1905. Serial No. 291,585.

Claim.—1. In a brake, a shaft, a friction member secured thereon, two co-operating friction members arranged on opposite sides thereof, means for rotating one of said co-operating friction members relatively to the other, and means actuated on such movement for causing both of said members to engage the first-named friction member, substantially as described.

825,225. Self-Propelled Vehicle. Hermann Lemp, Lynn, Mass., assignor to General Electric Company, a corporation of New York. Filed Jan. 14, 1904. Serial No. 188,958.

Claim.—1. The method of increasing the maximum output of a generating unit comprising a prime mover and a compound-wound electric generator driven thereby, which consists in cutting out the series field of the generator at the maximum load.

825,269. Tire. William A. Field, Chicago, Ill. Filed Oct. 16, 1905. Serial No. 282,926.

Claim.—1. In a wheel, the combination with a felly having in its periphery an annular groove, of a tire in the outer portion of said groove, a loosely mounted rim within said groove for supporting said tire, a series of segmental plates or blocks within said groove and beneath said rim, springs for elasticmally supporting said cegmental blocks, radially-disposed studs projecting inwardly from the inner face of said rim and through openings in said felly, coil-springs upon the free ends of said studs, and adjusting devices upon said studs.

825,276. Automobile. Hermann Lemp, Lynn, Mass., assignor to General Electric Company, a corporation of New York. Original application filed Jan. 14, 1904. Serial No. 188,958. Divided and this application filed Jan. 24, 1906. Serial No. 297,575.

Claim.—1. In a self-propelled vehicle, a prime mover, an electric generator driven thereby, an electric motor driven by said generator, and means for lowering the speed of the prime mover below the critical speed of the generator without stopping the prime mover.

825,287. Tire-Plug. David Apstein, Bridgeport, Conn. Filed Oct. 24, 1905. Serial No. 284,160.

Claim.—1. A pneumatic-tire plug, comprising a head formed of a single piece of sheet metal having a central pocket therein, and an integral ear on either side turned in over said pocket, to partially inclose the same, a threaded shank with a round head mounted in said pocket, and a nut upon the shank.

825,295. Speedometer. Leon E. Blanchard, Boston, Mass., assignor to Rollins Manufacturing Company, Boston, Mass., a copartnership. Filed May 25, 1905. Serial No. 262,168.

Claim.—1. In an instrument of the class described, in combination, a dial provided with graduations, a pointer co-operating therewith, gearing to rotate said pointer, means to rotate said gearing, a lever controlling the operation of said means, a shaft operatively connected with the mechanism or vehicle whose speed is to be measured, a governor operated from said shaft and controlling the movement of said lever, a second pointer co-operating with said dial and concentric with the first-mentioned pointer, and mechanism operatively connected with said shaft to operate said second pointer step by step substantially as described.

825,300. Automobile-Climber. Stephen E. Burke, Butler, Ind. Filed July 31, 1905. Serial No. 272,064.

Claim.—1. In a device of the class described, the combination of a gripping member or shoe, consisting of a bar formed of a single piece and disposed transversely of and resting against the tread of a wheel, adjustable calks carried by the bar and projecting from the outer face of the same, short flexible connections located at opposite sides of the rim of the wheel and secured to the ends of the gripping member or shoe and adapted to permit a tire to expand and contract freely, and means connected with the flexible connections for retaining the device on the wheel.

825,329. Steering-Axle. Hermann Lemp, Lynn, Mass., assignor to General Electric Company, a corporation of New York. Filed Sept. 25, 1905. Serial No. 279,936.

Claim.—1. In a steering-axle, the combination with the jaws, the knuckle, the pivot-bolt passing through said jaws and knuckle, wear-plates surrounding said bolt at the ends of said knuckle, and an adjusting-nut on said bolt having a smooth cylindrical exterior fitting a bearing in the lower jaw.

825,336. Carburetter. Thomas McCormick, Mount Pleasant, Pa. Filed Sept. 11, 1905. Serial No. 278,053.

Claim.—1. In a carburetter, the combination with a casing, of a perforated partition located therein, said partition subdividing the interior of the casing into a lower reservoir and an upper separating-chamber, an air-pipe having a perforated portion extending through the reservoir, said pipe extending into the separating-chamber and terminating therein above the partition, and a delivery-pipe communicating with the separating-chamber.

825,384. Clutch. Charles A. Fisher, Niagara Falls, N. Y., assignor of seventy-three one-hundredths to Louis Silverburg, Niagara Falls, N. Y., and Curt C. Andrus, North Tonowanda, N. Y. Filed Mar. 12, 1904. Serial No. 197,861.

Claim.—1. In a clutch, a locking member, shoes movably held by the locking member, operating means movably connected to intermediate portions of the shoes, cams mounted upon the locking member, means for connecting the cams and said operating means, and means for moving the cams to actuate the shoes.

825,417. Ball-Bearing. Edward Rivett, Boston, Mass. Filed Aug. 5, 1905. Serial No. 272,814.

Claim.—1. In a ball-bearing, two bearing members, one of which is adapted to rotate within the other, each bearing member having a ball-race, and balls in said race between said members, one of said members having in its inner face a ball-supply groove extending from a side face of said member parallel to the axis of rotation and leading to and terminating at the ball-race, a ball-retaining key detachably held in said groove, said key having its inner end shaped to conform to and form part of the ball-race of the bearing member in which it is located and means on said side face for holding the key in place.

825,418. Ball-Bearing. Edward Rivett, Boston, Mass. Filed Oct. 26, 1905. Serial No. 284,415.

Claim.—1. In a ball-bearing, an annular bearing member having an interior annular ball-race and a ball-supply groove extending parallel to the axis of rotation and leading to said ball-race, a ball-retaining key removably sustained in said groove, and a spring-ring occupying an annular groove in the interior of the bearing member and seated in a transverse groove on the inner face of the key.

825,432. Mile-Meter. Hiram Tyler, Los Angeles, Cal. Filed June 19, 1905. Serial No. 265,835.

Claim.—1. The combination with an axle, of a split sleeve fastened thereto and provided with trips at different points along the length thereof, a case journaled on said sleeve, a shaft in said case extending parallel with the axle, counter-wheels on said shaft, and gear near each end of said shaft and operatively connected with said counter-wheels.

825,433. Speed and Spark Regulating Device for Explosive-Engines. Thomas Van Tuyl, Iowa City, Iowa, assignor to The O. S. Kelly Western Manufacturing Company, Iowa City, Iowa, a corporation of Iowa. Filed Mar. 30, 1905. Serial No. 150,148.

Claim.—1. In an explosive-engine, the combination with a supply-valve adapted to be operated by the piston-suction, of an exhaust-valve spring-pressed in its closed position, and an igniter, the engine crank-shaft, a secondary shaft geared thereto, a disk on said secondary shaft having a cam on one side and a pin upon the other, a pivoted arm having connections, including a lifting-bar, to said exhaust-valve, a rod pivoted intermediate of its ends on said bar, one end of which is adapted to engage and move said igniter and the other end extending in the path of said pin, a latch adapted to hold said arm out of the path of said cam, means adapted normally to release said latch and permit said arm to move into the path of said cam, said means being further adapted by the increased speed of the engine to pass free of said latch, substantially as specified.

825,438. Gearing. John Wilkinson, Syracuse, N. Y., assignor to H. H. Franklin Manufacturing Company, Suracuse, N. Y., a corporation of New York. Filed Aug. 29, 1902. Serial No. 121,454.

Claim.—1. The combination of a rotatable driving member, a driven member consisting of a main body formed with a flange, and a disk detachably mounted on the main body and fixed to the flange, said disk being provided with an integral spindle arranged eccentric to the axis of the driven member and projecting from one face of the disk, a gear revoluble with the driving member, a second gear revoluble relatively to the driven member, a gear journaled on said spindle and connected respectively to the former gears for transmitting motion to the driven member and means for limiting the rotation of said second gear, substantially as and for the purpose specified.

824,478. Fender for Automobiles. James

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D. Parke, Toledo, Ohio, assignor of one-half to William D. Parke, Toledo, Ohio. Filed May 3, 1906. Serial No. 314,970.

Claim.—1. In a device of the described character, a fender, a pivotal support for the fender upon which the fender may be swung vertically, a rod pivotally connected with the fender, a lever with which said rod is connected, a pawl upon the lever, a pivoted rack-bar having teeth adapted to engage said pawl, a foot-piece, connections between the rack-bar and the foot-piece, and a spring which holds the rack-bar nominally in engagement with the pawl.

825,499. Carburetter for Gas-Engines. Thomas L. Sturtevant, Quincy, and Thomas J. Sturtevant, Wellesley, Mass., assignor to Sturtevant Mill Company, Boston, Mass., a corporation of Maine. Filed July 6, 1905. Serial No. 269,323.

Claim.—1. In a carburetter provided with a suitable spray-nozzle or fuel-inlet, the combination with a mixing-chamber and an air-inlet passage-way thereto, of an automatic vacuum-regulating valve normally closing said air passage-way at or adjacent said nozzle or inlet and yieldingly mounted so as to open proportionately to the volume of air drawn in by suction, said valve extending below said inlet or nozzle so as to receive, for subsequent vaporization, any liquid fuel not instantly vaporized.

825,529. Device for Inflating Pneumatic Tires. Alfred T. Fisher, Brooklyn, N. Y. Filed Dec. 5, 1904. Renewed Jun 14, 1906. Serial No. 321,668.

Claim.—1. In a device of the character described, the combination with a rotatable member of a power-driven vehicle, of a casing including a pump-cylinder and a dust-proof crank-case, complementary air-compressing mechanism carried by the casing, a fixed guide for the casing, and means whereby the casing is movable on said guide toward and from said rotatable member.

825,531. Controller for Motor-Vehicles. Gustave E. Franquist, New York, N. Y. Filed May 26, 1905. Serial No. 262,42.

Claim.—In a system of control for motor-vehicles, an engine, a valve arranged to control its speed, a governor connected to said valve, a link normally spring tensioned and connected to said valve to influence the action of said governor, means for withdrawing the influence of said link, a foot-pedal, and means whereby the governor is wholly thrown out of operative relation by said foot-pedal.

825,572. Apparatus for Inflating Vehicle-Tires. Milo A. Baker, Los Angeles, Cal., assignor to Alfred T. Fisher, Brooklyn, N. Y. Filed Aug. 28, 1903. Serial No. 171,130.

Claim.—1. The combination with a rotatable member of a power-driven vehicle, of a guide fixed to the vehicle, a pump inclnding a cylinder and complementary air-compressing mechanism carried thereby, said cylinder mounted upon said guide and means whereby the cylinder is movable on said guide toward and from the rotatable member.

825,593. Steering-Head for Motor-Vehicles. Gustave E. Franquist, New York, N. Y. Filed Aug. 11, 1905. Serial No. 273,718.

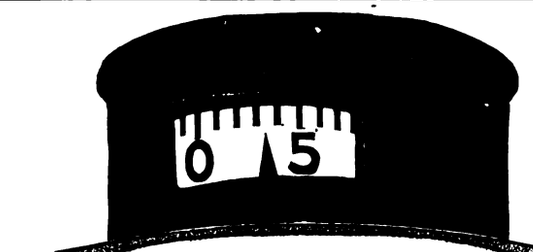
Claim.—1. A steering-wheel or head comprising a tubular frame, a revoluble casing on said tubular frame and carrying a steering-wheel, a pair of longitudinally-movable worm-casings within said tubular casing, and a pair of worms for moving said casings, and having a movement covial with said wheel.

825,754. Vaporizer for Hydrocarbon-Engines. Carl F. Pearson, Chicago, Ill. Filed Aug. 3, 1904. Serial No. 219,331.

Claim.—1. A vaporizer comprising walls forming an air-passage, and an oil-passage discharging therein, a spiral baffle located in the air-passage, a valve connected with the baffle and controlling the air movement through said passage, and means for operating the baffle and valve.

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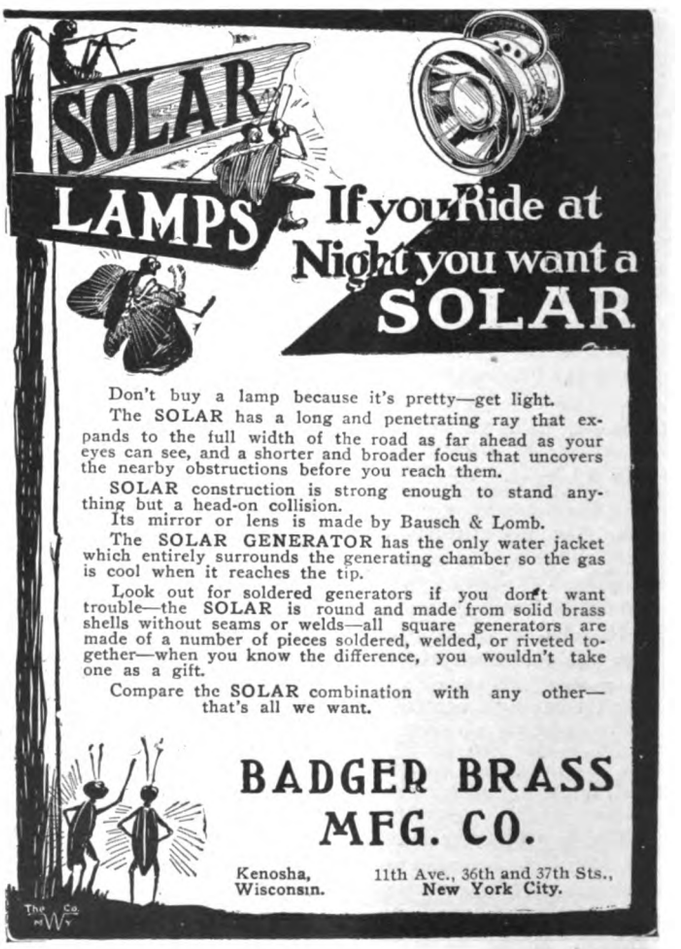
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Radiator Talks

BY FRANK BRISCOE

No. 1. Types of Radiators

There are two general classes; "tubular," in which the water goes through the tubes, and "cellular," in which the air goes through the tubes and the water between. Do not mistake for cellular any type which is really a modification of tubular, but looks like honeycomb.

It is a fallacy to say broadly that one type cools better than another. One type may cool better than another per unit of size, per pound of weight, or per dollar of cost. Whichever of these factors is the strongest, together with appearance, should determine the type of radiator.

For instance, the Briscoe Honeycomb with brass casing costs more per cooling unit than plain round tube with fin-metal fins, but it weighs less, takes less room, and looks immeasurably better. Probably the cheapest cooler per unit of efficiency is the 5/8" round tube with staggered gang fins of fin-metal, used without casing. For a low-priced job use this or 5/8" round tubes with round or square perforated and corrugated fins, or the No. 1 flat tubes with fin-metal fins.

In some cases a medium-powered car is laid out with a front of the same size and appearance as a much higher priced car. In this case the space left for the radiator may be filled with a type comparatively low in efficiency and correspondingly low in cost, in order to use up the space, and yet be in keeping as to cost with the selling price of the car. Several types very handsome in appearance are suitable for this.

When efficiency, lightness and appearance are the primary factors, the cost being less important, the honeycomb or the flat tube with copper fins are the two types to use. It is sometimes hard to choose between them, but each individual case must determine.

On cars up to 25 H. P. or even higher, the honeycomb can generally be arranged for thermo-syphon circulation, discarding the pump. A little more surface is required, and the arrangement and connections must be carefully studied out in each case. Vertical tubes may at times be used, but are not so sure as the honeycomb. I refer to the true honeycomb, having lateral as well as vertical circulation.

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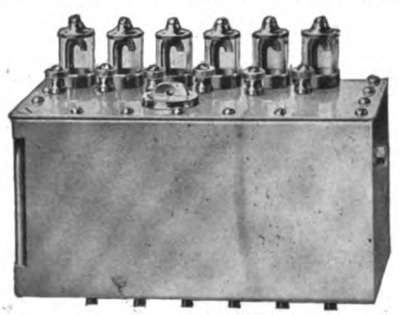
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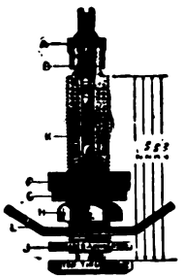
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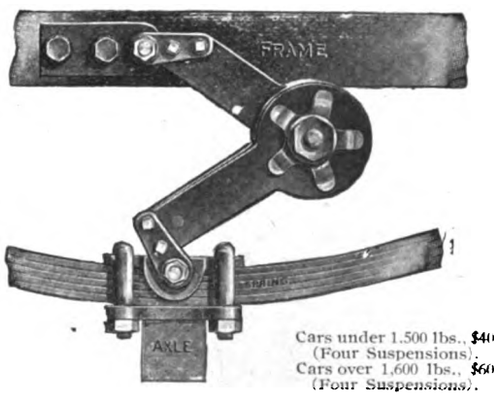
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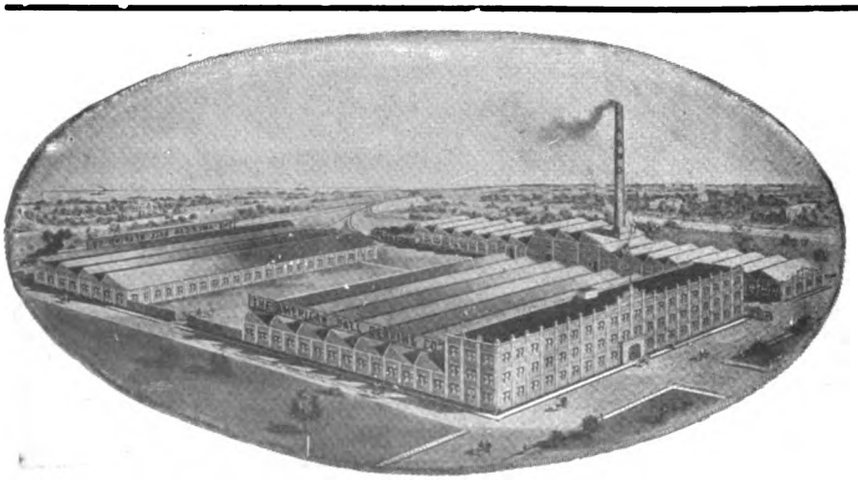
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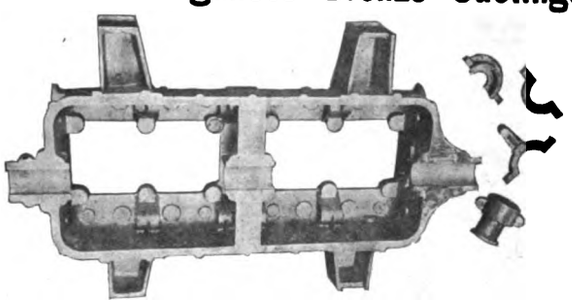
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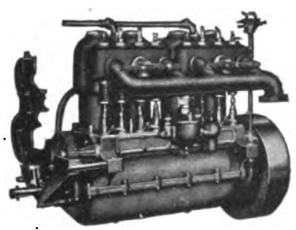
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This instrument will tell HOW FAST you are going, HOW FAR on each trip and HOW MANY MILES your car goes the whole season.

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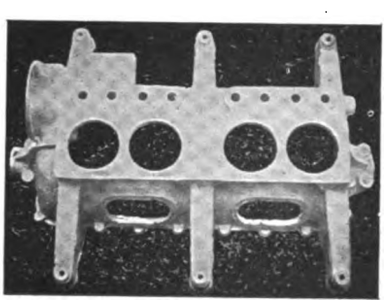
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Repairing of all kinds in our line.

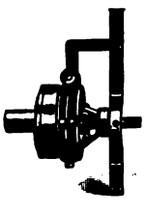
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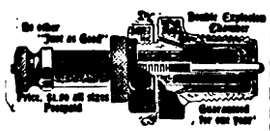


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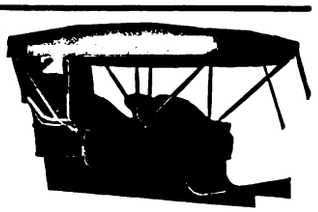
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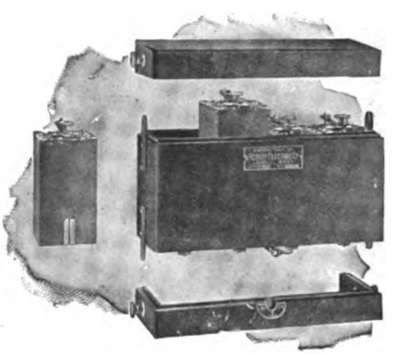
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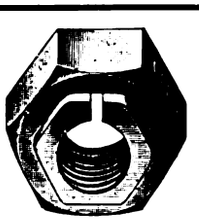
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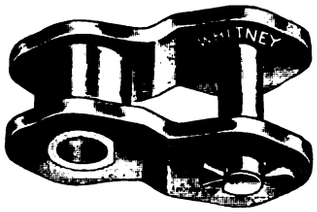
C. F. SPLITDORF

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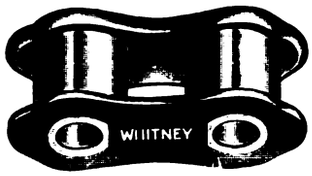
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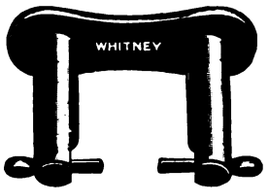
Connecting Link



OFFSET LINK



Assembled Center Block

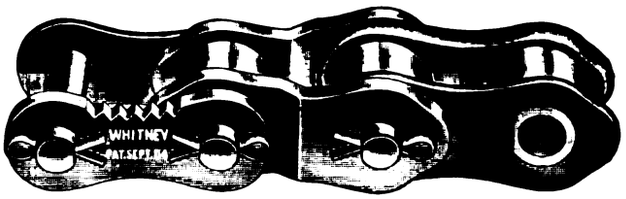


Side Link with Rivets Assembled



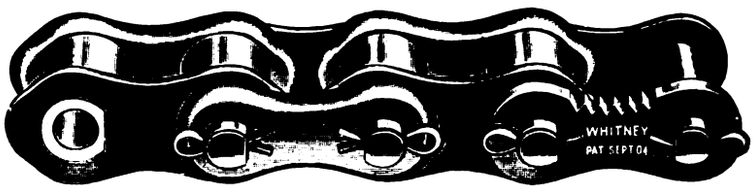
Side Link Plain

"Whitney" Offset Links for use when it is required to shorten or lengthen a chain only one Link.

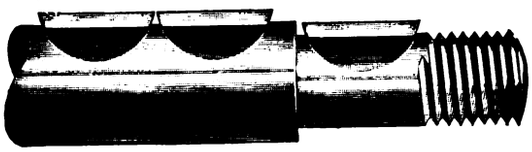


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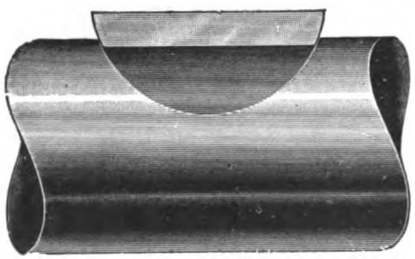
"ADAMS-FARWELL" "ADAMS VEHICLE CO." "AMERICAN MOTOR TRUCK" "AUTO-CAR EQUIPMENT" "BAKER" "BERKSHIRE" "BIDDLE-MURRAY" "CADILLAC" "COLUMBIA" "CHAMPION (McCrea)" "CROWN" "CRAWFORD" "COLUMBUS BUGGY CO." "ELWELL-PARKER" "FORD" "FRANKLIN" "GAETH" "GALE" "GROUT" "HEWITT" "THE HOLMES" "IROQUOIS IRON WORKS" "KNOX" "LAMBERT" "LEAR" "MATHESON" "MACK BROTHERS" "MITCHELL" "MOLINE" "NEW YORK MOTOR TRUCK" "OLDS" "PACKARD" "RAMBLER" "RAPID" "REO" "SIMPLICITY" "STEARNS" "THOMAS" "TOURIST" "WAYNE" "WESTERN MOTOR TRUCK" etc.

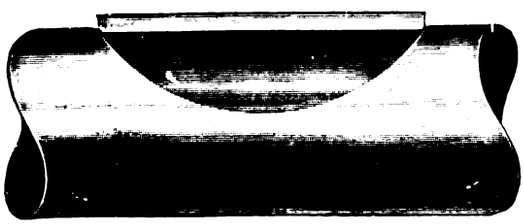


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when you buy tires that are as strong as they ought to be. Tires that give out are mightily expensive, beside being a first-class nuisance. Tires that wear out give you the same satisfaction that you get from a good suit of clothes. Don't stand for "give-out" expense; use

Every tire a *good* tire. We have no special tires for special uses. You can be sure of the quality of the tire *you* buy.

You may never have occasion to use the reserve strength that is put into these tires (we hope you won't) *but it's there if you do.*

MORGAN & WRIGHT TIRES

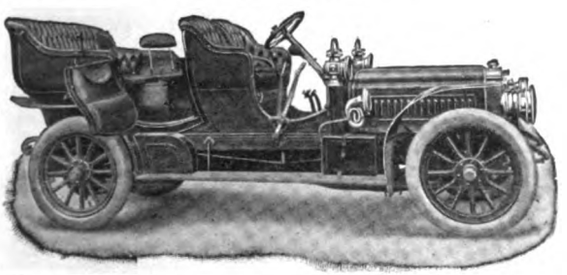
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It is the **best** car, rated by the greatest number of highly standardized essential factors.

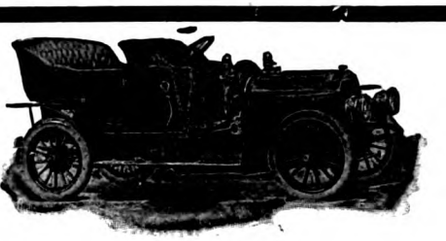
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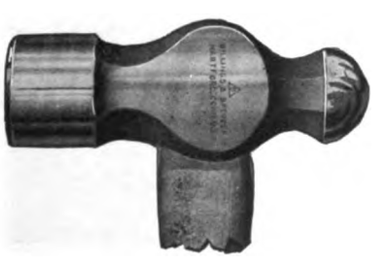
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Drop-Forged of Special Steel.

Hickory Handles.



The Hammer that will stand the racket of all-around usage on your car or in your garage.

THE BILLINGS & SPENCER CO., Hartford, Conn.

Whitlock Coolers

FOR 1907

WILL BE THE STANDARD FOR HIGH-GRADE CARS

Do not waste time and money on experiments.

If prompt deliveries appeal to you, you will be interested to know that we already have **the** largest factory in America engaged in manufacturing cellular coolers, and that we are now erecting a second and larger building which will more than double our present capacity.

In addition to cellular coolers, we make **disc radiators** of several types, **hoods, exhaust** and **inlet pipes** and **headers, muffler** pipes and bent and brazed work of every description for automobiles.

THE WHITLOCK COIL PIPE COMPANY,
HARTFORD, CONN.

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GLIDDEN 66⅔% GOODRICH

Records are made *at the end* of a contest and the only per cent. mark that counts is the one that shows final achievement.

In the contest for the Glidden Trophy 13 cars finished with a clean score, 9 of which were equipped with Goodrich Tires.

In the contest for the Deming Trophy 2 cars finished with a clean score, one of which, White Steamer, driven by Mr. August Post was equipped with Goodrich Tires.

TOTAL—

15 cars showed a clean score.
10 or 66⅔ per cent. equipped with Goodrich Tires.
5 or 33⅓ per cent. divided between all other makes.

Of the 10 clean score cars showing Goodrich Tire equipment 6 used Goodrich Quick Detachable Construction.

THE B. F. GOODRICH COMPANY, - - - Akron, Ohio

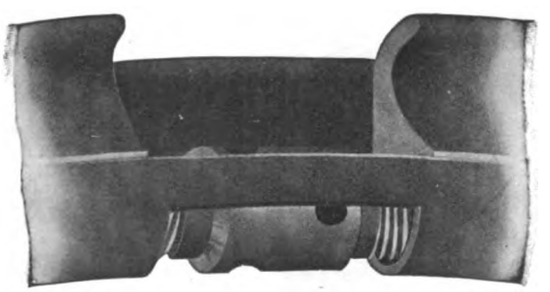
Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

NEW YORK—66-68 Reade St. & 1625 Broadway.
CHICAGO—24 E. Lake St.
BOSTON—161 Columbus Ave.
BUFFALO—731 Main St.
DENVER—1444 Curtis St.
OAKLAND, CALIF.—Fourth & Washington Sts.
CLEVELAND—2188 9th St., S. E.
PHILADELPHIA—909 Arch St.
DETROIT—80 E. Congress St.
ST. LOUIS—3926-28 Olive St.
LONDON, E. C., 7 Snow Hill.

Pioneer Steel Wheel and Universal Rim Manufacturers of the World

Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

Sole Makers of the HARTFORD UNIVERSAL RIM for DUNLOP AND CLINCHER TIRES



MIDGLEY MANUFACTURING COMPANY, - - Columbus, Ohio.

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Contestants in Class III.

Price	Name	Time
$1800	Mitchell	0:43⅘
$2250	Olds	0:43⅘
$2500	Ford	0:44⅘
$2500	Ford	0:45⅕
$2800	Franklin	0:51⅘
$2500	Rambler	0:51⅘
$2000	Queen	0:52⅘
$2250	Olds	0:52⅘
$3000	National	0:54
$3000	Frayer-Miller	0:54⅘
$1800	Franklin	0:59⅕
$3000	Marmon	0:59⅘

Besting also the following in Class IV.

$4000	Thomas	0:45
$3500	Royal	0:46
$3500	Thomas	0:59⅕

And the following in Class V.

$3500	Royal	0:47

Wherever the Mitchell Tries, It Wins

WE HAVE been so busy trying to get out cars enough to fill our orders that we have not had time to engage in the races, hill-climbing contests, etc., which are continually being pulled off.

It is a peculiar and very significant fact, however, that whenever the MITCHELL has tried it has WON, beating out cars at often DOUBLE the price.

What will happen if we ever have time enough to follow the lead of others, make up special cars and "go after" these records instead of picking them up incidentally here and there with stock cars is a matter of conjecture.

Our customers say that no matter what test is given the Mitchell, it has a most gratifying habit of "making good."

Our handsome Art Catalogue (price 10c) will tell you about the Touring Car at $1800 which has made dozens in the $3000 to $5000 class look foolish. Write for it.

Mitchell Motor Car Co.

104 Mitchell Street, Racine, Wis.

THE MINNEAPOLIS

Mitchell Automobile Won Prize Cup for Hill Climbing

It Is a Handsome Affair, Donated by Leopold Metzger of S. Jacobs & Co.—Now on Exhibition at Garage of Auto Construction Company.



Mitchell car that won the fine cup made by Jacobs, in the recent auto hill climbing contest.

The 30-horse power Mitchell automobile created an enviable record for itself when it crossed the tape in the hill climbing contest at the Riverside hill driveway in 43⅕ seconds, thus winning the finest valuable motoring trophy ever offered in an automobile contest in the Northwest.

The course is 2,000 feet in length, and has a rise of 76 feet. It contains one hard turn and presents several minor inequalities, but the roadbed on the day of the contest was firm and dry, offering the drivers an excellent opportnity to demonstrate the worth of their respective machines.

With the exception of the class in which the stripped and freak cars were allowed to enter, the chief interest was undoubtedly centered in Class 3, as it was in this class that the higher priced and popular cars were running. Considerable rivalry had been existing among most of the dealers and owners, and, as had been predicted, the finishes were close and exciting, with the Mitchell winning out by the mere fraction of a second.

It sailed up the incline in a beautiful manner, with the driver and his assistant leaning far forward in order to afford the least resistance to the wind. Their run was the best of the day, with the probable exception of that made by the little steamer which set a new record for the hill.

The $1,800 car made unusually good showing in competition with its $2,500 and $3,000 rivals.

Considerable credit for the excellent record made by the Mitchell must be given to the daring and skillful manipulation of the levers and wheel, for had not the driver been perfectly cool and well able to handle his car, disastrous results might have been expected. Earnest Simpson, who brought the car successfully over the line a week ago Saturday, has plenty of nerve as well as skill, and will drive the Mitchell in all future speed contests.

C. C. Evans, of the Auto Construction Co., the owner of the machine in question, is now exhibiting to his friends the handsome trophy cup which he won in the hill climb. It is without doubt one of the most beautiful cups ever offered for any automobile race in the Northwest.

It was donated by Leopold Metzger of S. Jacobs & Co., jewelers, 518 Nicollet avenue. Resting on a pure ebony base, it stands two feet high, is made of solid sterling silver, and is lined with a thin covering of gold. It is adorned with a miniature automobile at the top, while a decidedly effective finish is given by three large handles each with a mercury wheel at its base. It is on exhibition at the Auto Construction Co.'s Garage, 1401 Hennepin avenue.

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Exit the Tire Trust.

Ever hear of the "Tire Trust?" "No!"

Ever hear of "tire trouble" then? You have if you or your friends own an Automobile.

Behind tire trouble has stood the tire trust.

Three-quarters of it has been unnecessary.

Three-quarters of it has been directly caused by a narrow-minded and vicious policy, that has stood from the first squarely across the path of the automobile's progress into public popularity.

The "tire trust" **was** composed of all of the more prominent tire manufacturers.

It was founded with the sole object of keeping up tire prices, and of dividing the whole tire business of the country among its members. Its object was **not** to make a **good** tire, and sell it at a fair price, but to make a fair tire, and sell it at a good price. Its success in controlling the tire market **was** complete. Prices were kept up—quality down. The only sufferers were the buyers and the manufacturers, the reputation of whose cars naturally suffered from the poor quality of the tire which they were forced to put on. To-day the "tire trust" is practically a thing of the past. **On September 1st, 1906, it goes out of existence.**

That date marks the end of a long hard fight against the tyranny of a monopoly that was threatening the very life of the automobile business. To the group of independent manufacturers who waged this fight and **won it** conditions had become intolerable. They saw clearly that the present and future development of the automobile depended upon a revolution of the tire busines.

United under the name of the AMERICAN MOTOR CAR MANUFACTURERS' ASSOCIATION and including such well-known manufacturers as the MAXWELL-BRISCOE MOTOR CO., the FORD MOTOR CO. and the MITCHELL MOTOR CAR CO., they concluded that if the trust would not make an honest tire, worthy of the cars which bore their reputation, that they would go into the tire business themselves, drive the trust out of the market, and give the public the **square deal** in tires that they were entitled to.

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Enter the Ajax.

On November 14th, 1905, the Ajax Standard Rubber Co. was organized by members of the American Motor Car Manufacturers' Association, with the sole purpose of throwing off the yoke of the tire trust, and of making for the members of the Association the best tire that money and skill could produce.

Under these conditions it is only natural that the policy of the company has been and always will be to make a tire for the benefit of the automobile owners and manufacturers rather than for the tire manufacturers.

This does not mean that the Ajax Standard Rubber Company is making tires at a loss, it simply means that they are making an **honest** tire (the best that **can** be made), and selling it at an **honest** price.

The automobile manufacturers get their profit rather in the increased efficiency of their cars than in an artificially high Ajax Standard Rubber Company dividend, and the public get a **square deal.**

A Company that makes a tire that **is not expected** to last will be very wary of a guarantee.

The Ajax tire is made to wear, and its manufacturers are so positive that it will wear that they issue with each numbered tire a correspondingly numbered guarantee that the tire will stand up for at least 5,000 miles against blow outs, blistering and rim cutting.

Nothing like this guarantee has ever heretofore been even considered by a tire manufacturer.

Write Department A for a copy and judge it for yourself.

DO YOUR TIRES CARRY WITH THEM SUCH AN INSURANCE POLICY?

DO THEY NEED IT?

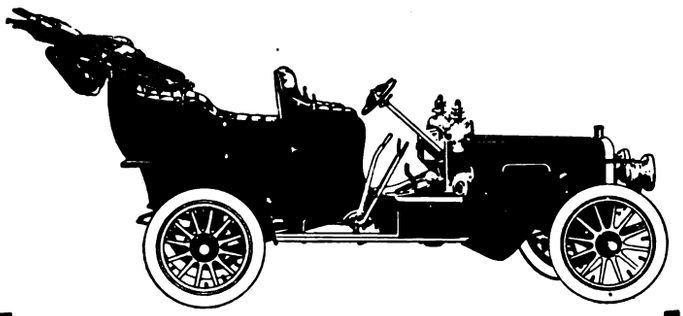
Write to-day for copy of guarantee and location of our nearest agent.

AJAX STANDARD RUBBER CO.,

FACTORY AND GENERAL OFFICES:

420-430 East 106th Street, NEW YORK.

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6-CYLINDER FORD CAR

THE ITEM OF WEIGHT is a vital consideration in an automobile. Given the actual horse power, the gear ratio and the actual weight of any car, the experienced motorist can pretty accurately estimate its speed and hill climbing ability.

TIRE CONSUMPTION is the greatest item of cost in the maintenance of an automobile. The life ot tires is directly dependable on the dead weight of the car.

THAT'S WHY there's so much fibbing about this matter of weight. *When it's such a simple matter* to verify the statements of salesmen in this important detail isn't it strange that so few ask for proof?

THE FORD 6-CYLINDER CAR is advertised to weigh 2,500 ponnds. It will weigh, without top but with all tanks full, just one ton and a quarter. Next time, ask the demonstrater to kindly drive around to the nearest scale—the market, a coal office or a brewery will do, and it will cost only ten cents. You'll be surprised to learn how much you were to get for your money—of tire troubles and other drawbacks; unless it's a Ford; and then you'll believe us next time.

MODEL "K"—6-Cylinder vertical water-cooled; 40 H.P.—and then some; 2 complete, independent systems of ignition—magneto and storage batteries; $2500.

A DEMONSTRATION IS A REVELATION

FORD MOTOR CO., Detroit, Mich.

Members American Motor Car Manufacturers' Association, Chicago.

BRANCHES: 147-149-151-153 Columbus Ave., Boston; 1721-23 Broadway, New York; 1727 Main St., Buffalo; Broad and Buttonwood Sts., Philadelphia 1444 Michigan Ave., Chicago; 1913 S. E. Euclid Ave., Cleveland and 318-320 E. 11th St., Kansas City.

CANADIAN TRADE supplied by Ford Motor Company of Canada, Ltd., Walkerville, Ontario.

Locomobile

Wins Endurance Run of the Albany, N. Y., Automobile Club

Joseph B. Taylor, driving his 30-35 H.P. "Locomobile," won the silver cup donated by Col. A. J. McClure. Over 540 miles through New England without a stop or adjustment.

Also W. L. L. Peltz, driving a 30-35 H.P. "Locomobile," secured honorable mention. 19 competing cars. Two of them "Locomobiles."

Send for "Locomobile" Catalogue.

The *Locomobile* Co. of America

BRIDGEPORT, CONN.

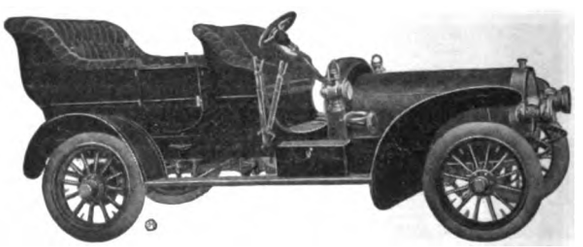
Members Association Licensed Automobile Manufacturers.

National

WORLD'S RECORDS FOR 1000 Miles and 1094 3/16 Miles in 24 Hours

Made Nov. 17th, 1905

STILL STANDS UNEQUALLED.



4 Cyl. 35-40 H. P. $3000. 6 Cyl. 50-60 H. P. $4000.

NATIONAL RELIABILITY AND ENDURANCE ARE HARD TO BEAT.

Write for Particulars.



National Motor Vehicle Co.

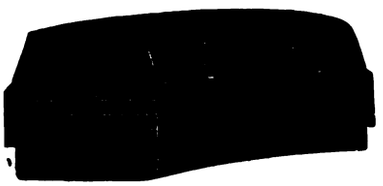
1007 E. 22d STREET, Indianapolis, Ind.



• Member American Motor Car Manufacturers' Association, N. Y. •

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ALL THE POINTS THAT MAKE



Diamond
WIRE MESH BASE TIRES

BEST FOR MOTOR TRUCKS AND COMMERCIAL CARS.

Are reasons that appeal to the interest of the user.

We have described some of these points in this space in past issues. They were:

SIMPLICITY: Tire base and attaching device are one and the same.

PERMANENCY OF ATTACHING DEVICE: Tire simply cannot come off after being applied.

A LOW TIRE: Giving little or no leverage for side strains or the other wrenching strains so disastrous to tires of the old fashioned kinds.

A BROAD TIRE: Giving enormous traction and permitting jars and wear to be distributed over a large surface.

In short, Diamond Wire Mesh Base Tires are made to avoid the weaknesses and defects of the ordinary truck tires, **and they do it.**

Made of the best rubber—tough and full of wear, yet resilient.

Our proposition will certainly interest you.

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

NEW YORK—78 Reade St.
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BOSTON—174 Columbus Ave.
PHILADELPHIA—304-306 N. Broad St.
BUFFALO—715 Main St.
DETROIT—258 Jefferson Ave.
ST. LOUIS—3966 Olive St.
CHICAGO—1523-31 Michigan Ave.
CLEVELAND—1514 Euclid Ave.
SAN FRANCISCO—
MINNEAPOLIS—503 Second Ave., S.
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The GOODYEAR Detachable AUTO-TIRE ON Universal Rim

Removes that ever-present terror of Punctures. You or anyone can remove a tire and put it back in 60 seconds by the watch

No Tools but the Hands

Come to the Factory or spend a few minutes at any of the following Branch Stores, and see how easy it is done by doing it yourself

Boston, 261 Dartmouth St,
New York, cor. Sixty-fourth St. and Broadway.
Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
Buffalo, 719 Main St.
Denver, 220 Sixteenth St.
Detroit, 242 Jefferson Ave.

The Goodyear Tire and Rubber Co., Grove Street, Akron, O.

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HAYNES ENGINES

THE engine is the ALL IMPORTANT part of an Automobile. It determines the car's value more than all other parts combined.

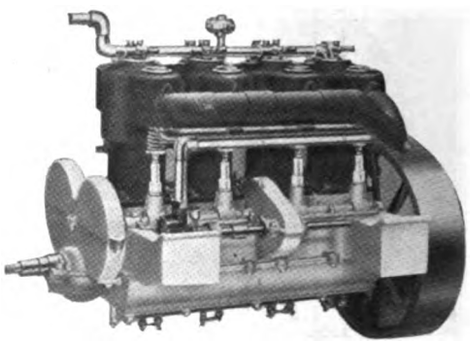
The "HAYNES" engine, built in our own factory, harmonizes perfectly with all other parts of the car.

Noise and vibration have been reduced to a minimum. Every working part is immediately accessible for repairs, adjustment and inspection. Lower half of crank case easily removed, giving ready access to crank shaft, connecting rods, pistons and bearings. Cam housings are external.

"HAYNES" piston ring construction gives much higher H. P. than ordinary rings. Each piston is fitted with three sets of triplicate rings, in addition to which a wrist pin is held in position by a single ring in a fourth groove, making ten rings to each piston. Cylinders are cast from a specially compounded metal, which takes a polish like glass and insures perfect compression and high power.

In requesting catalogue, for prompt attention address Desk D 25.

THE "HAYNES" IS THE HIGHEST POWERED SHAFT-DRIVEN CAR BUILT.



HAYNES AUTOMOBILE CO.
Kokomo, Indiana.
CHICAGO: 1420 Michigan Ave
NEW YORK: 1715 Broadway.
Members A. L. A. M.



"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5½x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,500 f. o. b. Kokomo. Full equipment.

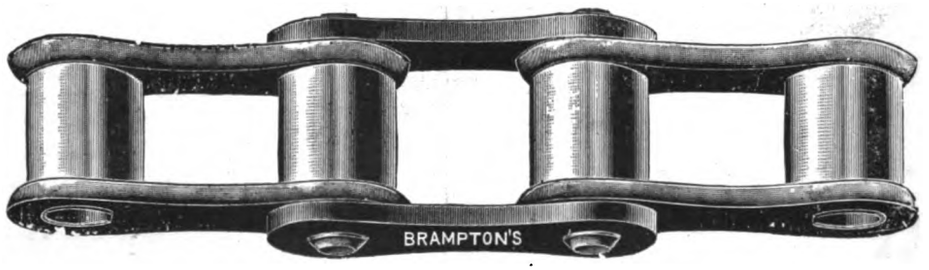
Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs 4½x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R" 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.

POWER

At this stage of automobile development, the power transmission by chain is most popular.
Properly cut sprockets, and the best and strongest chain in the world.

THE BRAMPTON



Which is made of self-hardening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

The matter of repairs and replacements is simple.

YOUR CHOICE.

The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars. **Special chains to fit Indian motorcycle.**

CHAS. E. MILLER, MANUFACTURER, JOBBER, EXPORTER AND IMPORTER,
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G & J
Motor Car Tires

Perfect in Material and Workmanship,

Handsome in Appearance.

Made with OVAL RAISED TREAD, giving added wearing surface and proper road contact.

Provided with BREAKER STRIPS to resist severe shocks.

Fitted with a tough, pliable cushion of rubber next the fabric, relieving it from the force of heavy blows.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

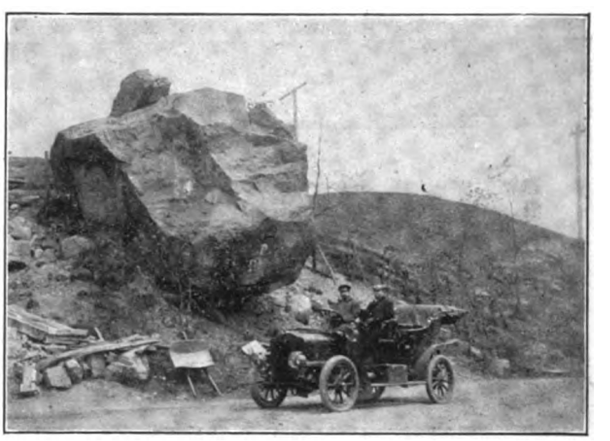
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G & J TIRE CO.
Indianapolis.

Depots:
Chicago Buffalo Detroit Cleveland
Boston Denver Oakland, Calif., 401 12th St.
Philadelphia New York, 10 W. 60th St.

Distributing Agents:
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The Incomparable
WHITE
The Car for Service.



A. A. A.
GUIDE BOOK

All tourists desiring to secure the guide book for the American Automobile Association tour from Buffalo to Bretton Woods, issued by this Company, can have a copy sent them, without expense, by addressing us.

This guide book is pronounced by all to be the most comprehensive publication of the kind ever issued. By following the directions in this booklet tourists can readily find their way over any part of the route covered by the tour. We will also send these books to all names on lists forwarded us by secretaries of clubs.

WHITE SEWING MACHINE COMPANY
PUBLISHER'S DEPARTMENT
1402 Broadway, New York City

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Columbia

AUTOMOBILES

Are completely illustrated and described in THREE CATALOGUES devoted respectively to GASOLINE CARS (18 H. P., 24-28 H. P., 40-45 H.P.,) ELECTRIC CARRIAGES (Runabouts, Victoria-Phaetons Surreys, Broughams, Hansoms, Landaulets, Busses) and ELECTRIC COMMERCIAL VEHICLES (delivery wagons and trucks, ranging in load capacity from 1,000 to 10,000 pounds.)

Mailed on request; and also special illustrated pamphlets, "Fashioning A Crankshaft," "Columbia Chrome-nickel Steel," "Transmission, Etc.," "Consistent Differences."

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PHILADELPHIA—Pennsylvania Electric Vehicle Co., 250 N. Broad St.
WASHINGTON—Washington E. V. Transportation Co., 15th & Ohio Ave.
Members Association of Licensed Automobile Manufacturers.

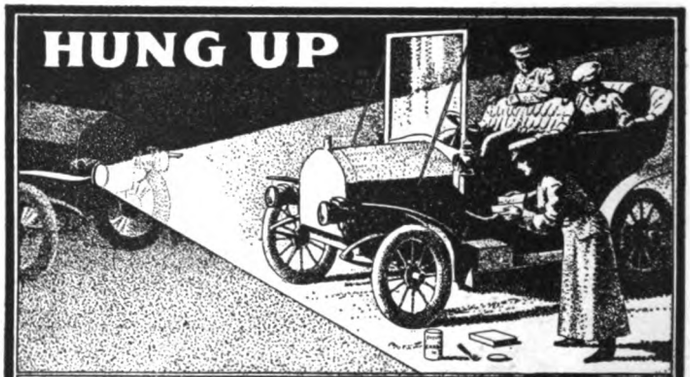
SPLITDORF COILS

THE STANDARD OF THE WORLD

Avoid any chance of trouble by seeing that your coil bears the name SPLITDORF.

C. F. SPLITDORF
15-27 Vandewater St.,
New York

HUNG UP



Ever see anything like what's happening to the man on the right, Mr. Motorist?

And, when a man pays from $1,000.00 to $5,000.00 for a Motor Car, with an engine worth a fifth of the whole cost, body worth a tenth, wheels a twentieth and so on—all equally necessary to giving him the pleasure he expects to get for his money—isn't it just a little inconsistent to economize(?) on light which costs but 1 per cent. of the total outlay, and a risk of 50 per cent. of all the pleasure?

For the best light apparatus costs only about one hundreth part as much as the rest of the car and on it depends just about one half of all the enjoyment you can expect to get. Any Motorist will tell you that there is nothing to compare with the exhilaration of a speedy night ride.

But you cannot really enjoy it unless you have confidence and are without thought of danger. Clear light on the road is your protection against accident. With it, you are sure—confident. Without it, fear handles your steering wheel.

And the one and only way to be sure of good, clear, dependable light always, is to get your gas ready made and ready to use.

Send for our Prest-O-Lite book "Ready Made Gas for Auto Lights" and read how you can really economize on light and, at the same time, be rid of jiggling carbide forever. There are over 11,000 Prest-O-Lite tanks in use to-day and over 400 Recharging Stations in the United States. You can exchange empty tanks for full ones at any of the stations by paying the cost of re-charging, and the change can be made in five minutes.

We want every Motorist to have a copy of our Prest-O-Lite book. Let us send you the book with our compliments and write you a personal letter about the light.

THE PREST-O-LITE CO. Department 174, Indianapolis, Ind.

The great **strength, durability** and **resilience** possessed by the

HEALY LEATHER TIRE

is occasioned by reason that **leather, rubber** and **fabric** each are placed exactly where they are needed to meet the various strains and wear under the most severe conditions.

No Punctures. No Rim-Cutting. No Blowouts. No Skidding.

We Guarantee Our Tire.

We have much more to say. Let us tell it to you.

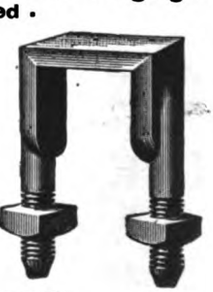
HEALY LEATHER TIRE CO.,
Healy Building, 89-90 Cold Street, NEW YORK CITY.

We are prepared to estimate on your 1906 Forgings.

Satisfaction Guaranteed.



Thousands of our spring clips are now in use, having been supplied to the leading automobile manufacturers.



Have you secured our prices?

THE M. SEWARD SONS COMPANY, New Haven Conn.

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NOTICE

To Dealers and Users of "AUTOGAS" Tanks.

"Autogas" tanks are *not* licensed under the patents of The Commercial Acetylene Company of New York, and will be prosecuted as infringements thereof.

"Prest-O-Lite" Dealers and Users are *Protected*

PREST-O-LITE COMPANY, Indianapolis, Ind.
Licensed by The Commercial Acetylene Company



SINGLE
FOR LIGHT WORK

HARTFORD

SINGLE and TWIN

SOLID TIRES



TWIN
FOR HEAVY WORK

Note Method of Attachment.

The successful commercial vehicle tire must have its retaining device vulcanized inside the tire, otherwise the attachments rust. The HARTFORD is secure and rust-proof.

THE HARTFORD RUBBER WORKS CO., Hartford, Conn.

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POPE AUTOMOBILES

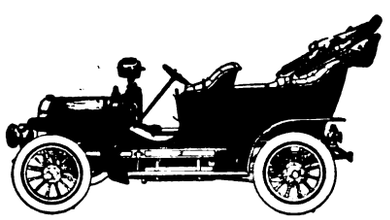
Glidden Tour Records

The Pope-Hartford is the lowest powered car that finished the Glidden tour with a

PERFECT SCORE

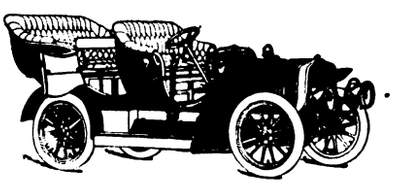
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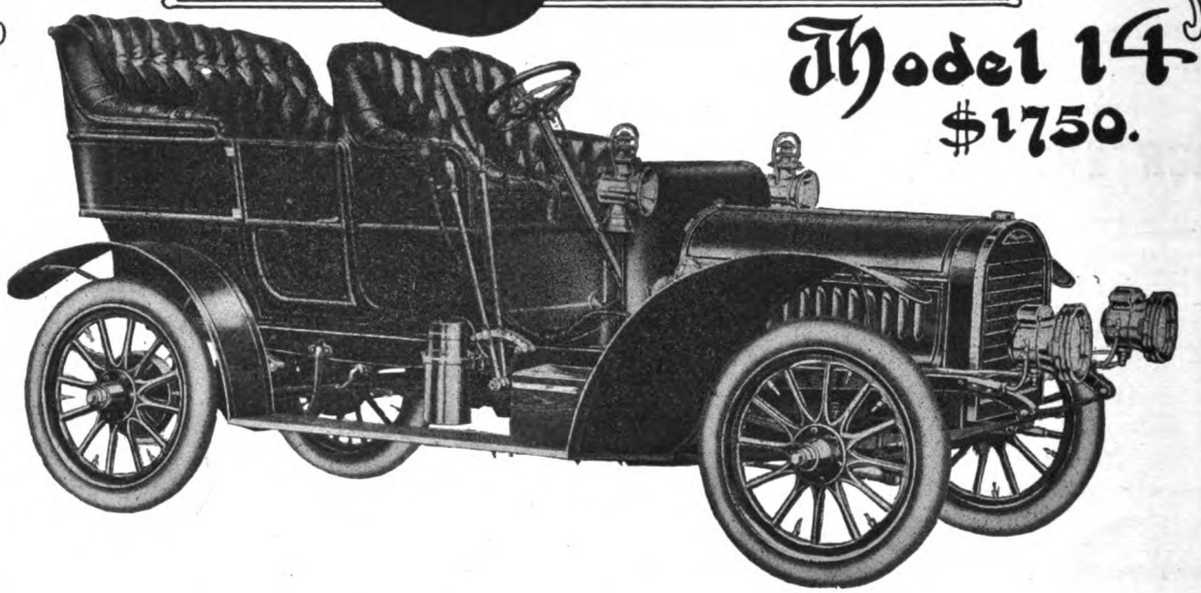
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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, August 2, 1906. No. 9

OUTDOOR SHOW OFF?

"Independents" and Automobile Club Get Together Again and Dicker for the Grand Central Palace—December Dates Likely.

After all, there is small prospect that a national outdoor show will be held this Fall in this country. The fact that so little has been heard of late of the American Motor Car Manufacturers Association's movement in that direction suggested a significant state of affairs, particularly as it had become known that not all of the board of management were so wholeheartedly in favor of the project as first reports had made appear; and the Motor World is now possessed of sufficient information to say positively that the idea of an outdoor show practically has been abandoned and that the A. M. C. M. A. and the Automobile Club of America have again joined hands and have planned to hold a show on the same lines as the last one, but in Grand Central Palace, New York.

The club, it is understood, took the initiative in the matter and has been in touch with the manufacturers' association and the powers of the Grand Central Palace for some time. During the past ten days matters have moved with such dispatch that there have been some hurried visits made, one of them requiring the emissary to "head off" the Glidden tourists in order to "meet his man." The result evidently has been favorable as the negotiations have reached such a point that, barring slip-ups, which are not probable, the lease of the Palace for a week in December will be executed within one week. It is reasonably certain that either the first or the second week in that month will be selected as dates nearer to Christmas rarely are desirable.

Grand Central Palace, located at Forty-fourth street and Lexington avenue, was the scene of one previous automobile show. Its location and its size—it affords more floor space than Madison Square Garden or the Sixty-ninth Regiment Armory—are admirably suited to the purpose and since the New York State authorities forbid the use of armories for exhibition purposes, it has been plain that it was the only available building for an "independent" show, if one was to be held, which seemed doubtful until within the last two weeks.

To Make Tires in Kansas.

Despite its distance from the "seat of war," the Kansas Rubber Co., Olathe, Kansas, is actually preparing to manufacture automobile tires, orders for the necessary materials having been placed in the East. The company, which is possessed of a new reclaiming process, was recently incorporated under the laws of Kansas with an authorized capital of $100,000 and these officers: President, I. D. Hibner; vice-president, E. Kipley; secretary, Luther Moore; treasurer, Charles Ott; manager, Ole Hibner.

Packard Denies Syndicate Story.

Because of persistent reports that a bonus-seeking syndicate had purchased the 1907 output of the Packard factory, the Packard Motor Car Co. has found it necessary to issue a denial. They say that while it is true they are appointing no new agents, preferring rather to take good care of those now on their books, they have provided what they believe will prove an effective means of preventing any speculative dealing in Packard cars by either individuals or syndicates, and of assuring their sale at catalogue prices.

Fries Finds an Opening in Akron.

G. Frank Fries, formerly of Buffalo, N. Y., and endearingly remembered by many of those identified with the automobile industry, has been engaged as superintendent of the Williams Motor Car Co., Akron, Ohio. This is the concern that recently was incorporated under the laws of South Dakota with capital stock of $1,000,000. In addition to Fries and the South Dakota million, the feature of the establishment will be a car having air brakes and solid tires.

STEERING WHEEL POOL

Combination Very Quietly Formed and Prices at Once Given a Big Boost—The Concerns Involved.

Almost without warning, a pretty little steering wheel "pool" has been formed in the very center of the industry. The first inkling that many of the automobile manufacturers obtained that anything of the sort was in being was the receipt of uniform quotations from makers of steering wheels, the new figures marking an increase that caused them to rub their eyes; the advance works out at about 60 per cent.

The chief "pebble" in the pool is the Centaur Motor Co., Buffalo, N. Y., which hitherto obtained the bulk of the business on a get-it-at-any-price policy. The policy caused several rivals to practically withdraw from the field and that the game was carefully planned the big jump in price clearly indicates. So far as known, the American Wood Rim Co. and the Tucker Wood Working Co., are swimming in the pool with the Centaur people, in fact, one of the latter is an official of the American Wood Rim Co., which with Tucker and several others, has for several years been concerned in a pool of the sort on wood rims for bicycles which operates as the Mutual Rim Co. and which is a very tight little combination. It has paid at least one maker of wood rims a snug sum to discontinue that branch of manufacture.

The fact that the A. O. Smith Co., Milwaukee, has notified the automobile trade that it has ceased the production of steering wheels, may or may not have a bearing on the present situation.

The prodigious increase in the price of those articles has been not well received by the automobile manufacturers, one of whom told a Motor World man that he would make his own wheels before he would pay the new price demanded by the pool.

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Victory to Perch in San José.

The Victory Motor Car Co., which was incorporated some time ago in San José, Cal., for the purpose of manufacturing the Sunset car, has completed its plant and will be ready to begin making cars in a few days. The factory consists of a large one-story corrugated iron building at 866-896 South First street, having a frontage of 208 feet and a depth of 90 feet. The company expects to erect another building adjacent to the present factory; it will be a two-story affair, measuring 79x90 feet. The officers of the Victory Motor Car Co. are as follows: President and manager, F. H. Holmes; vice-president and assistant manager, H. E. Knapp; secretary, William Kennedy; treasurer, State Security Bank of San José; directors—Samuel Tompkins and Wilbur Edwards.

Jackson Gets the Steel-Swallow.

Jackson, Mich., is to have another automobile manufacturing company, but as yet the plans and location for operating are not given out, as they are not perfected, but the concern has been incorporated with $100,000 capital. It will be known as the Steel-Swallow Automobile Co. According to the papers, its objects, as set forth, are to "manufacture, build, assemble, buy, sell and repair automobiles and other vehicles and gasolene engines and all of their respective parts." The capital stock is divided into 1,000 shares at $100 each, of which it is stated, $60,000 has been paid in. Representatives of the company are now in Chicago negotiating for machinery for the plant. The stockholders are David M. Dearing, Louis F. Boos, Josiah C. Richardson, Willis E. Bellows and Lee E. Alderdyce.

Fire Destroys Pierce Body Plant.

For the second time within a year the George N. Pierce Co., Buffalo, N. Y., have suffered from fire. Early Tuesday morning last, 31st inst., a disastrous conflagration partially destroyed the Montgomery Bros.' planing mill and box factory at Court and Wilkinson streets. The Pierce Company occupied the third and fourth floors of the main building as a body building plant and more than 100 cars in the course of construction were on the floors when the fire broke out. The two floors collapsed while the fire was at its height, carrying the majority of the finished and unfinished cars and valuable machinery through to the basement. It is said that the loss will aggregate $100,000.

Cameron Locates in Brockton.

In the future the Cameron car will be made at Brockton, Mass., and not at Pawtucket, R. I., the Cameron Car Co. having fitted up an establishment on Foundry street, in the former city. Heretofore the cars have been made in the machine works of James Brown & Sons, Pawtucket, but an effort will be made to build up the business independently.

The Week's Incorporations.

East Orange, N. J.—Snyder & Co., under New Jersey laws, with $25,000 capital; to repair automobiles. Corporators—H. H. Picking, C. O. Geyer and A. W. Condit, all of East Orange.

Denver, Col.—Merchants' Auto Delivery Co., under Colorado laws, with $100,000 capital. Corporators—R. W. Smith, E. G. Straub and W. R. Benzie, all of Denver.

Lexington, Ky.—Dewhurst Motor Car Co., under Delaware laws, with $25,000 capital; to do general garage business. Corporators—Thomas B. Dewhurst and George S. Weeks.

Geneva, N. Y.—Geneva Automobile Co., under New York laws, with $15,000 capital; to do a general garage business and sell automobile supplies. Corporators—A. G. Lewis, Charles S. Burrall, J. W. Mellen, T. H. Truslow and Walter A. Clarke.

Jackson, Mich.—Steel-Swallow Automobile Co., under Michigan laws, with $100,000 capital, $60,000 paid in; to manufacture automobiles. Corporators not named.

Kansas City, Mo.—Jackson Automobile Co., of Kansas City, under Missouri laws, with $10,000 capital, $5,000 paid in; to deal in automobiles. Corporators—Calvin B. Richards, Otto E. Saeger, Samuel R. Halstead, Verena E. Seager and Abram W. Frank.

New York City, N. Y.—Jackson Auto Renting Co., under New York laws, with $10,000 capital. Corporators—Joseph Dryer, D. S. Dryer and Leon Dryer, all of New York City.

Springfield, Mass.—Bailey-Perkins Motor Co., under Massachusetts laws, with $20,000 capital. Corporators—J. Leigh Perkins, James A. Perkins, W. L. Van Sicklen and Abraham E. Snow.

New Bedford, Mass.—North End Garage Co., under Massachusetts laws, with $1,500 capital; to conduct garage. Corporators—Dominique J. Barry, George W. Auger and Moise D. Prevost.

Louisville, Ky.—Longest Bros. Automobile Co., under Kentucky laws, with $10,000 capital; to deal in automobiles. Corporators—W. B. Longest, T. F. Longest and C. F. Longest.

Baltimore, Md.—Constructing and Maintaining Co., under Maryland laws, with $5,000 capital; to deal in electrical appliances and motor vehicles. Corporators—Charles D. Purroy, Edward I. Pearson, Walter Haines, Lillian Purroy, Helen A. Pearson and Harry Hechheimer.

Trinidad, Colo.—Trinidad Auto Transportation Co., under Colorado laws, with $25,000 capital; to conduct motor passenger and freight lines. Corporators not named.

Elizabeth, N. J.—Michelin Tire Repair Works, under New Jersey laws, with $10,000 capital; to manufacture and sell tires. Corporators—Robert L. Eaton, Alfred J. Deraismes and Henry F. Wolfskiel, all of Elizabeth.

In the Retail World.

The Geneva Automobile Co. has been formed at Geneva, N. Y., with $15,000 capital, to conduct a general garage business. The company has acquired the J. A. Place garage on Caster street and will take immediate possession. D. M. Dorman, a recogi nized machinist of ability, will manage the business. A. G. Lewis, Charles S. Burrall, J. W. Mellen, T. H. Truslow and Walter A. Clarke are named as incorporators.

The newly formed American Automobile Co., of Cleveland, Ohio, is planning for the erection of a commodious garage and salesrooms at the corner of St. Clair avenue, N. E., and Ontario street, that city. The building will be two-stories high, of brick and will have a frontage of 124 feet on St. Clair avenue and 114 feet on Ontario street. The building will cost $25,000 and will be ready for occupancy by October 1.

W. S. Daniel, who for a number of years has conducted the Michigan Automobile Co., of Grand Rapids, Mich., has sold the enterprise to the Buick-Johnson Co. The officers of the new concern are: President, C. L. Johnson; vice-president, A. H. Goss, and secretary, C. Roy Clough.

M. A. Wilcox has had plans drawn for a one-story brick garage to be erected at 1301 South Hill street, Los Angeles, Cal. The building will measure 90x120 feet, and is to cost about $12,000. Wilcox will engage in the automobile business.

Don P. McClure, Oskaloosa, Iowa, has bought the business of Fred Brackney, of East First avenue. McClure is the Buick agent and his acquisition includes the right to sell Maxwell cars in that territory.

Will Import the Michelin Rim.

E. D. Winans, general manager of the Michelin Products Selling Co., New York, has lost no time in arranging to receive a shipment of the detachable rims which proved of such notable advantage of Szisz in the Grand Prix. They will be placed on sale in this country. Winans states that the patents on the rim are owned and controlled by Michelin & Co.

Periman's Car is "Pinched."

Louis H. Periman, of 1988 Madison avenue, New York City, vice-president of the Welch Motor Co., will be grateful for any information leading to the recovery of his 50 horsepower, topless Welch touring car, painted red, which he says was stolen from a garage in Asbury Park, N. J., last week The machine bore the license number "7441 N. J."

Matheson to Build in New York.

The Matheson Company of New York, located at 1619 Broadway, has leased the premises at Nos. 1618 and 1620 and will erect a spacious garage and salesrooms. The building will be five stories in height and will be constructed of reinforced concrete.

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A. L. A. M. Engineers Gathered at Detroit



Nothing in the nature of very formal proceedings marked the meeting of the mechanical branch of the Association of Licensed Automobile Manufacturers at Detroit on July 24 and 25. The chief purpose of the gathering was to enable the engineers to view the plants and processes in vogue in the several Detroit "licensed" factories—the Cadillac, Packard and Northern—each of which was thrown open to them. Aside from business, a very jolly tour of St. Clair lake and river, concluding with dinner, of course, served to make the occasion a pleasant one.

Those in attendance were as follows: Edgar Apperson, Apperson Bros. Automobile Co.; H. A. Gillis, Autocar Co.; H. G. Field, Buick Motor Co.; Wm. E. Metzger, Cadillac Motor Car Co.; H. P. Maxim and John J. Roche, Electric Vehicle Co.; John Wilkinson and F. J. Haynes, H. H. Franklin Mfg. Co.; J. S. Worthington and Richard Wiley, Haynes Automobile Co.; A. L. Riker, E. E. Russell and A. C. Schultze, Locomobile Company of America; C. W. Matheson, Ross Anderson and W. C. Sheperd, Matheson Motor Car Co.; C. B. King, V. M. Gunderson and Wm. T. Taylor, Northern Mfg. Co.; George W. Dunham and R. B. Jackson, Olds Motor Works; L. H. Kittredge and W. F. Staring, Peerless Motor Car Co.; D. Ferguson, George N. Pierce Co.; Lindley D. Hubbell and Harold L. Pope, Pope Mfg. Co.; Robert M. Beck, W. C. Guilder and J. G. Perrin, Pope Motor Car Co.; E. D. Shurmer, Robert Jardine and A. C. Miller, Royal Motor Car Co.; Francis S. Sanborn, Alden Sampson 2d, and W. P. Kennedy, Smith & Mabley, Inc.; J. G. Sterling, F. B. Stearns Co.; F. P. Nehrbas, J. R. Shortt and H. E. Coffin, E. R. Thomas Motor Co.; Henry Souther, metallurgist, and Coker F. Clarkson, the new secretary of the mechanical branch of the A. L. A. M.

England's Imports and Exports.

England's imports of foreign cars during the month of June, showed a gain which, undoubtedly, is accounted for in the recovery of the French makers from the effects of the labor troubles of the early spring. The importations for the month aggregated 530 cars in all, valued at $1,197,960; adding to this a total valuation of parts to the extent of $746,975, gives a combined total of $1,944,935, as against 508 cars last month, valued at $1,085,250, and parts to the value of $883,865, making a total of $1,969,015. Or, in other words, despite the gain in the number of complete machines imported, a falling off in the imports of components, has brought down the total to a lower figure than that of last month, as would be expected. The total of June, 1905, for $1,563,605, is still exceeded, however. The imports for the first half year total $11,550,405, the valuation of 3,217 cars being given as $6,496,310, to which has been added the value of parts to the extent of $5,104,145. This amounts to an increase of $2,725,000 roughly over the corresponding figures of one year ago, which totalled only $8,824,640.

Exports, on the other hand, showed an increase of $90,000 over the exports of last year, and at the same time, a decrease of some $37,000 over those of May. The figures for May and June were $279,930 and $242,760, respectively. For the first six months of 1906, the shipments comprised 499 cars, valued at $876,190, with parts to the value of $644,350, making a total of $1,520,540, as against $820,850 in 1905.

Motor 'Busses to Compete with Trolleys.

The Spokane Automobile 'Bus line has been formed, with C. White, of Spokane, president, and it is announced that a passenger line will be run from that city to Moran Prairie, eight miles north of Spokane. The company has secured a right of way through one of the most picturesque portions of the Spokane valley and it is announced that 10 cars will be put into service early in August. It is the intention to compete with the electric cars.

Alliger Out of Bradenburg Firm.

R. D. Alliger, Jr., has retired from the firm of Bradenburg Bros. & Alliger, New York and Chicago, his retirement dating as from July 1st. Alliger says he will now spend his time seeking health; after finding it, he intends to reinvest his savings in an automobile enterprise.

Foreign Gasolene 'Bus in New York.

New Yorkers are soon to be treated to a sight of what has long since become so common in London as to arouse no comment—the motor 'bus of the gasolene driven double-decked type which is such a close approach to the street car of the other side in appearance. One of these built by the De Dion works has just been imported by the New York Transportation Co., and was cleared from the Custom House yesterday. It will be employed for general work and if successful will probably be adopted on the Fifth Avenue line.

Imports Show Slight Falling Off.

According to the report of the Appraiser of the Port of New York, 107 automobiles, including eight domestic cars, were brought into this country during the month of July. They were valued at $379,881.25. In July of last year there were imported 98 cars valued at $382,170.37.

A. M. C. M. A. to Meet Monday.

A meeting of the American Motor Car Manufacturers' Association has been called for Monday next, 6th inst. It will occur in New York and undoubtedly will have to do with the settlement of the show matter.

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Much has been written and printed concerning the care and use of tires for automobiles and much misinformation has been circulated.

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NEW YORK, AUGUST 2, 1906

Some Lessons of the Tour.

Before the Glidden tourists had even arrived at their destination there were some of the wise ones—who did not go on the tour, by the way—who arose to ask with that air of superiority invariably assumed by the self-appointed critic, "Well, what did the scramble demonstrate, anyway? Will American cars be improved as the result of the observations taken? Not a bit of it. It was nothing more or less than a helter skelter rush and the devil take the hindmost, with cars waiting in plain sight of the checkers for the moment to come when they could officially arrive, making an opera bouffe spectacle of it."

Conceding the latter part of the indictment to be a true bill, it is apparent that either a state of mind which the ruralist commonly refers to as "prejuiced," or the sour grapes of inability to participate in the tour, have jaundiced the judgment of these gentlemen who were so quick to raise their voices in derision in an attempt to belittle the value of the result. That the ambitions of the committeemen overreached themselves in trying to run a number of automobiles over a practically unknown country on what was equivalent to a railroad schedule was apparent the very first day and the defects of the system as enforcible under the circumstances soon became so glaring that frequent and numerout adjustments on the spot were necessary.

But admitting all this, it must be conceded that no route better adapted to bring out the real qualities of a car, nor one that would afford more of interest to the tourists themselves could have been selected. There were probably more lessons in construction to be gleaned from the experiences of the various cars on the tour than have even been forthcoming from any single event of the kind. The American maker has been proud of his ability to provide axles and suspension designed for American roads, but the frequency with which these essentials defaulted plainly showed that there is still considerable to learn. That the foreign cars should have suffered in this respect was not strange.

It also showed in a manner hardly less striking than the now historic endurance runs to Buffalo and Pittsburg in earlier days, that the proportions of weight to power have not as yet been satisfactorily settled. Many of the high-powered cars stalled on hills or were unable to pull themselves out of ditches even when relieved of all unnecessary load. But where many of these high-powered and high-priced cars found it difficult going the heavily loaded baggage wagon, light touring cars and even a single-cylinder runabout covered the ground, forming a striking commentary on the comparative efficiency of the two, price and power considered. Taken all in all, this year's Glidden tour may well go down as one of the most instructive of its kind and after the discomfort and ill-feeling attendant on the inevitable errors of judgment and temperament that will crop up regardless of the efficiency or otherwise of the management, those who can now see nothing of value in its experiences will doubtless be of the same opinion.

Crowding the Calendar.

Automobile design has reached a point where production no longer waits upon it. In earlier days the car that was rated as the model of a certain year was that year's model and frequently even the first finished specimens of it were scarcely dry in time to take their places upon the stands at the mid-winter show. But things are different now. Last year's model is this year's model and this year's model is next year's model. This seemingly senseless rigamarole represents the present status of affairs in a few words better than any lengthy explanation could. In other words, 1906 models were on sale comparatively early in 1905. Many a buyer acquired his 1906 car before the end of October last year. Now it is possible to buy a 1907 model, so that the advertising of a New York agent who made it known about sixty days ago that his entire allotment of 1906 models was sold out, but that he was already booking orders for 1907 cars, is not so far fetched as it may have appeared at first sight.

As a matter of fact a stage has been reached where the distinction between a car of this year's model and one of last year or the next has practically disappeared. Only the man who can afford to maintain a stud of cars, or the individual who feels compelled to buy a new car as regularly as the twelve-month ends now indulges in the latest model of his favorite as fast as it appears in the market. And he will have to revise his calendar. Last year he could have marked off his buying date as some time in September; this year he could make it July and at the same rate of progression he should be able to buy 1908 models at the 1907 shows. It simply goes to demonstrate how little bearing the actual date of the model now has upon the car itself. But there always will be more than sufficient demand for cars embodying the very last word in the matter of innovation and improvement to continue to turn out a car that is styled by the year in which it reaches the market. If the makers are not careful, however, they will soon have reached a point where their models have gained a lap.

Boost for Mechanical Fastenings.

What the combined efforts of a number of tire manufacturers in this country have had difficulty in accomplishing during a period of two or three years, a single event has brought about in a day. As far back as three or four years ago some of the far sighted manipulators of cotton and rubber who govern the destiny of the automobile, saw clearly that until the millenium arrived there was little use of standing by and waiting the advent of the perfect tire. The inherent weakness of the materials could never be entirely eliminated. And accept-

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ing the situation presented, they also saw that the motorist would not be forever content to uncomplainingly undertake the struggle necessary every time the car's "footwear" was removed or replaced—an operation that was even then becoming increasingly burdensome with the advancing sizes of tires.

In other words, they saw the day of the mechanically fastened tire in prospect and they have been trying to make the motorist see it ever since, but while substantial progress has been made, it has been made gradually. More favor has been accorded it during the present season than ever has been the case previously, but still it can hardly be said to have met with that general adoption that it merits. And this in spite of the constant efforts of a number of tire makers to bring the motorist to a realization of what was to be had for the asking. Then the Grand Prix was run off in France and was "won by a rim," and presto! all the world is at once interested in and begins to think and talk of the advantages of mechanically fastening the tire and its rim to the wheel. Nothing could speak more eloquently of the quick commercial benefits that grow out of public contests, which it is the fashion for many manufacturers and merchants to hold in contempt. A minute more or less is not vital to the tourist or the pleasure-seeker in any other role, but the ease and convenience with which this type of tire can be replaced on the road is an item that appeals to him forcibly and must do so as a far greater extent than it has in the past once its merits are generally known and appreciated.

The Most Far-reaching Improvement.

If one who has been in close touch with the development of the car ever since its inception were to be asked what he considered the greatest improvement brought about in that time, it is difficult to conceive of more than one answer. And that would naturally be betterment of material. It may appear strange at first sight to place this above improvement in construction and design, for material is always to be had of as high a grade as the builder is willing to pay for. At least such is the assumption of the average observer. But five years ago the steels now employed in automobile building were not to be had at any price. Of course, there was plenty of good steel to be had—more than enough of it to build the strongest car that ever ran on wheels, but what of the weight?

An increase of dimensions was hardly permissible, for in some of the earlier cars the latter were already in excess of the dictates of reason, yet the parts gave way. What the designer wanted was smaller axles and bearings, smaller steering knuckles and smaller gears and shafts, but without an improvement in the quality of the metal composing them it would be folly to think of reducing their size. The car must perforce be burdened with all that dead weight in order to be a car at all. And part and parcel of this same advance was the selection of material for the purpose instead of relying upon the stock shelves of the hardware dealer to supply small parts. In other words the disappearance of bar iron and carriage bolts in favor of parts specially made of suitable metal in the shop of the builder.

What single improvement can be compared with this sweeping change that has made the car what it is to-day? The stamped steel frame has taken the place of cumbrous built-up affairs, the automatic valve has disappeared in favor of mechanical operation, valve placing has been studied with good result, the shaft drive has produced more silent running, bodies and tires have been improved and so with everything else; nothing has been overlooked. But all these are details that would not have helped matters much had not better material made it possible to build a 50 horsepower car of the same weight or less than the twenty of a few years previous.

The Range of Price.

It would be difficult to find another industry in which such utter extremes are brought together as in that of building automobiles. Probably no other line of endeavor, except that of building yachts, and here the comparison will not lie because they are invariably built to order even in detail, can there be found makers turning out similar products with such an extreme range of prices as automobiles.

One manufacturer devotes his energies to turning out cars at an extremely low price, while the minimum limit of another will cover the cost of twenty of his contemporary's small productions and he has absolutely no limit in the other direction. Cars of home manufacture may be had at prices ranging from less than $500 up to $7,500 without going beyond the realm of the stock article. It is a fact that illustrates better than anything else that the use of the car is not confined to any one class or walk of life, though the 60-mile an hour car with the big horn is naturally most in evidence.

While New Yorkers will uncomplainingly continue to scale casks and cases and surmount runways placed across the sidewalks of some of the city's busiest streets, as frequently as not being compelled to take to the gutter to avoid obstructions, one of the departments of the municipal government is at pains to seek legal advice on the subject and receiving a favorable opinion, has started to take possession of automobiles which are left unguarded for a short time on the unfrequented streets of the upper part of New York City. The use of the entire sidewalk as a place of storage for goods awaiting shipment has long constituted a notorious nuisance in New York, but no learned legal opinion has ever been forthcoming to the effect that such obstructions were "encumbrances" within the meaning of the statute. But the automobile is an "encumbrance" and must be removed forthwith. There appears to be no difficulty in evolving adverse construction from any law if the automobilist can be caught in the process.

Judging from the value of the technical literature that has appeared up to the present with the automobile as its subject, it is apparent that the industry has entirely outgrown itself in at least one respect. There are men who can build good automobiles—many of them, and likewise men who can run them—many more of them, and the supply is increasing all the time, but the man who can condense into a single volume what the average beginner wants to know about the automobile, and more particularly what he wants to learn about it, does not seem to have materialized. Not that there is any dearth of books of the kind already in print—gallons of ink and reams of paper have been consumed in their manufacture. It would be better to clean off the slate and begin anew. In other words, there is a distinct lack of that combination of technical and literary talent that is required to write of such things understandingly. It may be that there is some of it in existence in a dormant state, but at all events, none of the volumes issued thus far bear traces of it.

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THIRTEEN TIED, BUT PIERCE KEEPS GLIDDEN TROPHY

"Exterminating Process" Exterminated but Few and Each of the "Lucky Thirteen" will get a Medal—Homeward Journey Reveals Gorgeous Scenery and Unexpectedly Glorious Roads in the Maine Wilderness—Story of the Trials and Tribulations, the Delights and Growlings of the Closing Days.

FINAL SCORE, GLIDDEN TOURING CONTEST

Entrant.	Car.	H. P.	Score by Day: 1	2	3	4	5	6	7	8	9	10	11	12	Total.
P. P. Pierce, Buffalo	Pierce	45	0	0	0	0	0	0	0	0	0	0	0	0	0
A. E. Hughes, Philadelphia	Pierce	45	0	0	0	0	0	0	0	0	0	0	0	0	0
P. S. Flinn, Pittsburg	Pierce	32	0	0	0	0	0	0	0	0	0	0	0	0	0
G. M. Davis, Buffalo	Thomas	50	0	0	0	0	0	0	0	0	0	0	0	0	0
L. J. Petre, Cleveland	Stearns	40	0	0	0	0	0	0	0	0	0	0	0	0	0
George Soules, Toledo	Pope-Toledo	40	0	0	0	0	0	0	0	0	0	0	0	0	0
W. C. Walker, Hartford	Pope-Hartford	25	0	0	0	0	0	0	0	0	0	0	0	0	0
W. E. Wright, Springfield	Knox	40	0	0	0	0	0	0	0	0	0	0	0	0	0
C. F. Barrett, Hartford	Columbia	28	0	0	0	0	0	0	0	0	0	0	0	0	0
Ernest Keeler, Lansing	Oldsmobile	30	0	0	0	0	0	0	0	0	0	0	0	0	0
C. Burman, Cleveland	Peerless	45	0	0	0	0	0	0	0	0	0	0	0	0	0
F. E. Wing, Boston	Marmon	30	0	0	0	0	0	0	0	0	0	0	0	0	0
G. G. Buse, Buffalo	Packard	24	0	0	0	0	0	0	0	0	0	0	0	0	0
R. R. Owen, Cleveland	Oldsmobile	30	0	0	1	0	0	0	0	0	0	0	0	1	2
E. E. Kirk, Buffalo	Thomas	50	0	0	0	0	0	0	0	0	0	0	0	2	2
D. Fairbanks, Chicago	Cleveland	30	0	0	0	0	0	0	0	0	0	2	0	0	2
A. Holden, Cleveland	Stearns	40	0	0	0	0	0	0	0	0	3	0	0	0	3
W. W. Burke, New York	Columbia	40	0	0	0	3	0	0	0	0	0	0	0	0	3
T. P. Forbes, New York	Reo	16	3	0	0	0	0	0	0	0	0	0	0	0	3
H. K. Sheridan, Cleveland	White	18	0	0	0	0	0	0	0	0	5	0	0	0	5
E. R. Lozier, New York	Lozier	45	0	0	1	0	0	0	0	0	5	0	0	0	6
Palmer Abbott, New Orleans	Oldsmobile	30	0	0	0	0	0	0	0	0	0	10	0	0	10
N. H. Van Sicklen, Chicago	Apperson	45	0	0	0	0	0	0	0	0	0	0	11	0	11
J. H. Becker, Clyde	Elmore	35	2	0	0	0	0	0	9	0	0	0	0	0	11
M. Hart, New Britain	Corbin	24	0	0	2	0	0	0	0	0	11	0	0	0	13
S. B. Stevens, Rome	Darracq	50	0	0	0	0	0	14	0	0	0	0	0	0	14
F. J. Pardee, Chicago	Packard	24	0	0	14	0	0	1	0	0	0	0	0	0	15
W. A. Danzer, Hagerstown	Crawford	28	0	0	7	0	0	0	12	0	0	0	0	0	19
John Banford, Lansing	Oldsmobile	30	0	0	12	0	0	0	0	0	9	0	0	0	21
J. H. McDuffie, Chicago	Stoddard	35	0	0	0	10	0	0	7	9	0	0	0	0	26
D. C. Kirkham, New York	Maxwell	16	0	0	0	0	0	0	0	10	11	6	0	0	27
R. H. Crawford, New York	Stevens-Duryea	50	0	0	0	87	0	0	0	0	0	0	0	0	87
B. H. Knowles, New York	Locomobile	35	0	0	0	0	89	0	0	0	10	0	0	0	99
C. G. Wridgeway, New York	Peerless	40	0	0	45	74	0	0	0	0	17	0	0	0	126
P. Corbin, New Britain	Corbin	24	0	0	257	0	0	0	0	0	47	0	0	0	254
J. A. Mechaley, Stamford	Pope-Hartford	24	0	0	234	0	0	70	57	0	16	0	0	0	409

Contestants who withdrew from the Glidden contest during the trip were: E. M. Wiley (Clement-Bayard), Elwood Haynes (Haynes), W. C. Durant (Buick), A. L. Rich (Lozier), J. E. De Mar (English Daimler), J. L. Snow (Peerless), James Laughlin (Cleveland), W. L. Davis (Pope-Hartford), W. L. Marr (Buick), T. E. Schultz (Marmon) and Webb Jay (White).

FINAL SCORES IN THE DEMING CUP CONTEST:

Entrant.	Car.	H. P.	1	2	3	4	5	6	7	8	9	10	11	12	Total.
C. W. Kelsey, Tarrytown	Maxwell	36	0	0	0	0	0	0	0	0	0	0	0	0	0
A. A. Post, New York	White	18	0	0	0	0	0	0	0	0	0	0	0	0	0
J. G. Cassatt, Philadelphia	White	18	0	0	0	0	0	0	0	0	79	0	0	0	79
W. Coleman, Lynn	White	18	0	0	0	0	0	0	0	0	151	0	0	0	151
E. L. Braine, New York	White	18	95	2	0	54	2	0	0	0	2	0	0	0	153

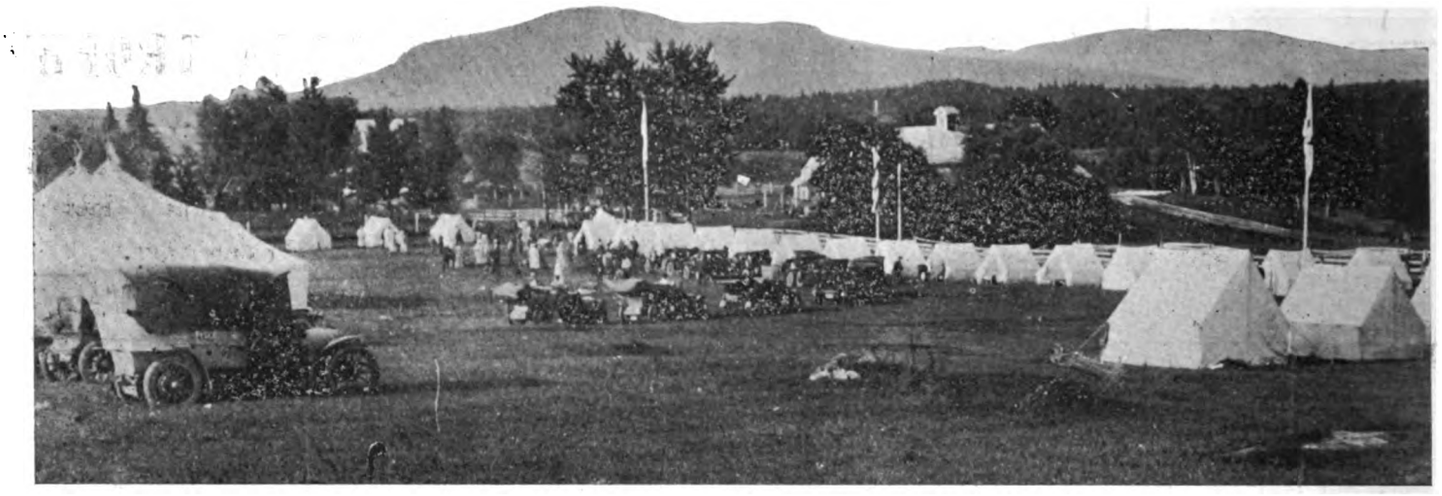
S. Gorham (Winton) and F. H. Pietsch (Peerless) withdrew from the Deming contest.

Other automobilists who made the tour without competing for any trophy were: J. M. Morrison, Boston (Pope-Toledo); R. B. Hamilton, Montreal (Oldsmobile); A. H. Rutherford, New York (Mercedes); G. O. Draper, Hopedale, Mass. (Packard); H. D. Newman, New Orleans (Packard); P. H. Deming, Detroit (White), and C. L. Auger, Paterson, N. J. (Stevens-Duryea). Besides these were six committee, pilot or official cars, the Knox baggage truck and the Oldsmobile supply car. The greatest number of cars in the tour at any one time was 72 and the greatest number of passengers 302.

Bretton Woods, N. H., July 29.—It's over—the Glidden touring contest. It terminated here yesterday afternoon and save one, perhaps it was the gladdest day of the seventeen. It is possible that the first day, July 12, when the 58 contestants—not mentioning the others—left Buffalo and when men and women and machines were spick and span and in good humor, was a gladder day, but the point is open to discussion. At any rate, there are few, if any of the participants, who are not mightily pleased that the tour is ended. Most of them are ready to swear that they want no more of the sort, but time probably will mellow the views of a number of them.

The run from Quebec to this point did little to render easier the task of the much-damned officials. At that point the tourists turned southward and on the 17th again pointed toward the United States, 23 of the

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THE GLIDDEN ENCAMPMENT AT JACKMAN, MAINE

original 53 contenders for the Glidden trophy, still retained perfect scores. But despite the doubling of the number of checking stations, 13 remained on the honor



WHAT BENT AXLES AND BROKE SPRINGS

roll at the finish yesterday evening. The freer and easier struggle for the Deming statuette was more easily settled. C. W. Kelsey, Tarrytown, N. Y., who drove a Maxwell-Briscoe car, has received that award. There were but five contenders for it. Four of them reached Quebec with perfect scores; two blurred their records after leaving that point, leaving Kelsey and Augustus Post (White) on equal terms at the finish. Post carried Cup Giver Glidden as a passenger and is a member of the A. A. A. Touring Committee and he withdrew in favor of Kelsey. They say the withdrawal was not performed as gracefully as some reports made appear, having been preceded by some heated talk and intimations of injunctions and what-not.

At Rangeley, on the 27th, the sorely tried committee realizing that nothing short of an earthquake would thin the number of perfect scores and enable the Glidden trophy to be awarded to some one contestant, decided that an extra run of 200 miles would be required to help settle the matter. When the decision was made known such a howl arose that the committee was forced to run to cover and change its mind. It finally has been decided that as none had defeated him, the trophy shall remain with the holder, Percy Pierce, of Buffalo. There were 22 tied in last year's contest from New York to Bretton Woods and return and their vote gave the prize into the keeping of Pierce. He was, of course, one of the 13 who finished yesterday without demerit. The "lucky thirteen" all will receive silver medals commemorating their achievement. Mr. Glidden will provide them.

When the tourists awoke on July 25 in Jackman, Maine—where the Motor World



A HILL THAT CAUSED HALTS

of last week left them—they had new grounds for grumbling. Tent life was strange to most of them and in no wise resembled a sojourn in the St. Regis. The

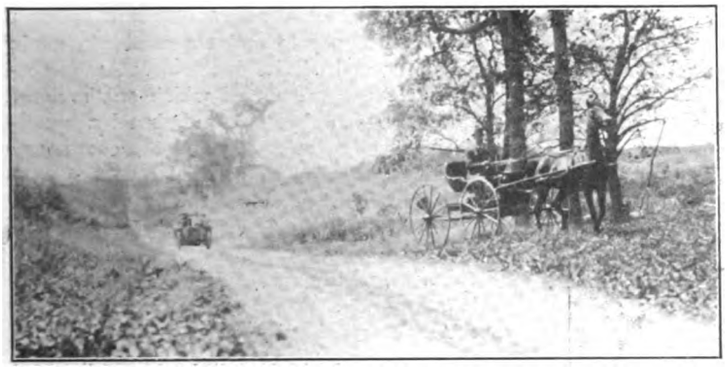


WHEN HORSEPOWER FAILED

grumblers had either not slept well, or had been chilled, or been disturbed by a couple of lynxes that raised their voices during the night and thoughts of the $5 charged for a bunk in the tents aggravated their complaints. Perforce the officials were to blame. If there had been no tents there would have been no sleeplessness, no cold night air, no lynx lyrics—and there you are! To uncommercial tourists, a night under clean canvas in such a picturesque spot with its camp fire and setting of mountains, would have constituted a delightful change and an experience worth remembering, but —well, the Glidden party was not made up of uncommercial tourists. Pleasure and experiences were among the last real objectives on their lists. They were in the hunt for a trophy that would lead to increased sales.

July 25th was such a day as to induce all save the chronic grumblers to forget their grievances. The run was from Jack-

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GIVING THE TOURISTS THE WHOLE ROAD



A SALUTING COMMITTEE OF ONE

man to Waterville, 81 miles, every mile of it through the famed North Woods of Maine and, immensely to the surprise of all, over roads of marblelike smoothness. The State of Maine proved a revelation in this regard. Few suspected that such magnificent roads existed and that they should exist in the heart of a primeval forest devoid of a sign of human habitation for stretches of 15 or 20 miles was more than any reasonable man could anticipate. If roads were good and grades easy, they were narrow, but oh! the beauty of the wild country. The dense, arborlike, sweet scented woods, the babbling streams, the nestling lakes, the succession of high hills from the top of each of which a glorious panaroma was outspread—it was magnificent. It was worth the travel of a thousand miles to see such things. It was worth double to be able to actually see them and without that blur that comes of being shaken in the tonneau like so many automatically operated jumping-jacks. Many tender spines found their first relief this day.

And at Waterville! The little town literally opened its doors to the tourists. They had enjoyed other welcomes, but none such as was given them there. Waterville was en fete. It treated the Gliddenites as conquering heroes.

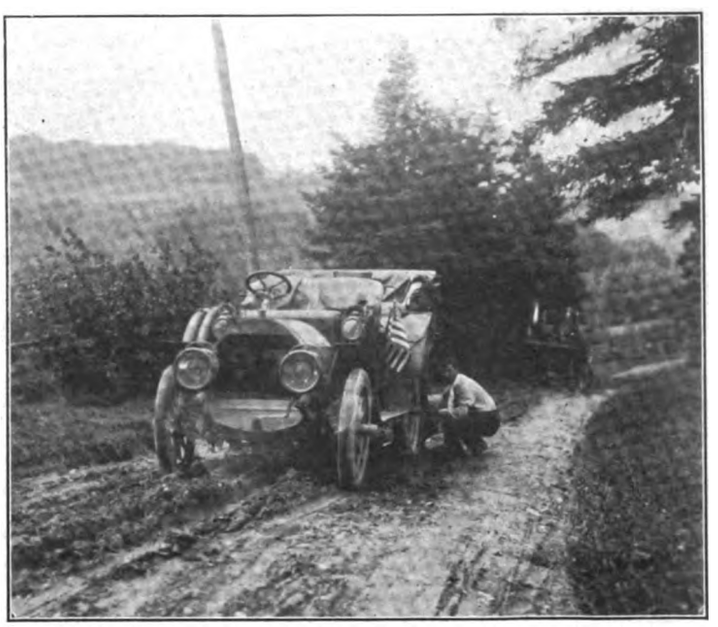
The town was gay with banners and bunting and Japanese lanterns. There was free cake and free lemonade for all who cared to partake of it. The Chamber of Commence afforded free admission to the summer theatre; the local band blew cheerful music, the local clubs and lodges threw open their doors and windows and the trolley car companies refused to accept fares from the strangers within the Waterville gates. Everything was so cheerful that the tourists were in humor to relish the story brought by Theodore E. Schultz. In St. Georges, Quebec he had suffered a broken axle. While repairs were being effected the mayor of the town came up and requested that the bill for the repairs be sent to him. He said that the streets of St. Georges were supposed to be kept in good order and that the town would have to pay for any damages sustained. Schultz did not faint, but that midnight while endeavoring to overtake the tour the memory of the incident caused him to run into a ditch from which he was not able to extricate the car until nearly daylight. This, however, had happened two days before. On the grand roads from Jackman to Waterville, W. H. Owen, driving Dexter Fairbanks's Cleveland car, was the only real sufferer. He sustained five punctures and though he



WHEN THE NURSES POSED



THE FRIEND INDEED



PUNCTURED.—!!

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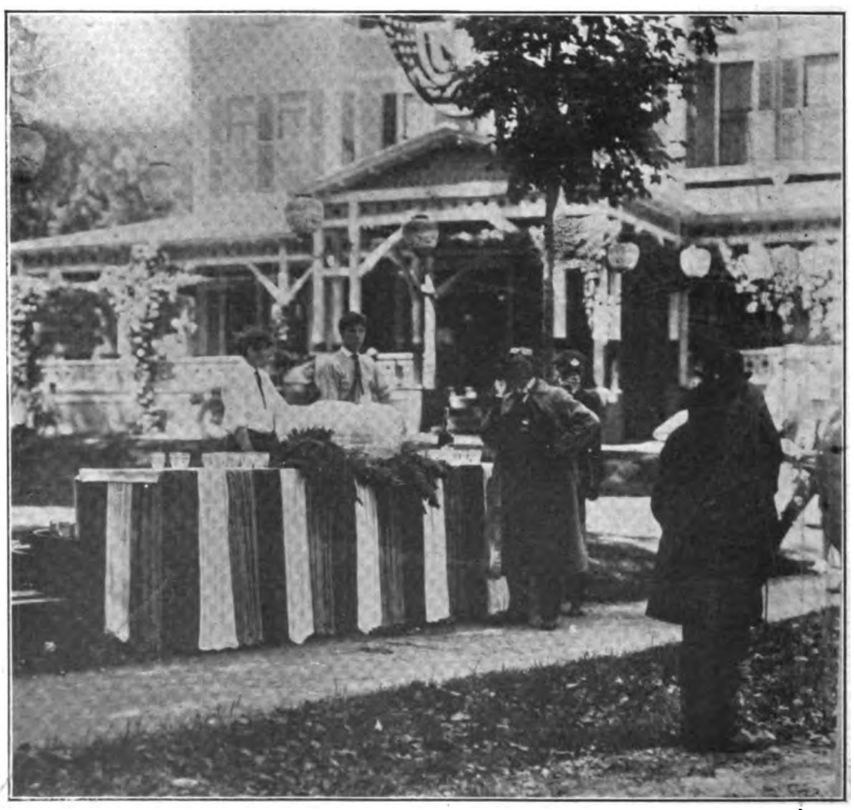
PERCY PIERCE ABOUT TO PART WITH PENNIES FOR CHARITY'S SAKE

drove like mad he was unable to save his clean score, arriving two minutes late and incurring therefore two demerits. Palmer Abbott, the New Orleans man, driving an Oldsmobile, had a narrow escape. In rounding a sharp curve the car upset and spilled its occupants, but fortunately, no great damage resulted. B. H. Knowles (Locomobile) collided with a wagon in rounding a similar turn; the wagon lost two wheels.

Despite the fine roads and scenery and the warmth of the Waterville reception, the complaints regarding increased and excessive hotel rates were heard as usual and an outcry arose about spending all of the 27th at Rangeley, as per program. The tour committee made the mistake of supposing that the Glidden tourists, like other tourists, would welcome a day's stop at a particularly inviting spot. But the Glidden tourists being chiefly business tourists, were anxious to have done with it as quickly as possible. They had no desire to tarry in Rangeley and did not mince words in saying so. Nevertheless, the original program was adhered to.

Rangeley, 103 miles from Waterville, was the destination on July 26th. It was another day of magnificent roads and glorious scenery. There was more of aromatic wilderness, more of high hills affording successions of impressive landscapes. The Kennebec river was followed for miles and then the beautiful Dead river country was penetrated. It was a day almost devoid of unpleasant incident; indeed, H. N. Van Sicklen, who had driven his Apperson car all the way from Chicago, was the only man who had reason to curse his luck. He had hardly known the meaning of misfortune in his more than 1,500 miles of travel. His record was as clean as a whistle, but this day on fine roads his tires went bang, not once, but several times. The delay cost him eleven points and removed his name from the roll of Glidden fame. At Rangeley, at the approach of which an "arch of welcome" had been reared, hotel accomodations were not ample and the customary grumble went up, reinforced by those who objected to spending the morrow and another night in the place. But Judge James B. Dill, of the Automobile Club of America, whose summer home is in Rangeley, and who was largely responsible for the itinerary of at least this part of the tour, was very much in evidence and did his best to make the tourists' stay pleasant. All of the 27th was spent at Rangeley and those who were not "chafing at their bits" hired guides and fishing tackle and had a day of real sport on the famous mountain-locked Rangeley Lake.

July 28th was, of course, the day of days—the last day of the journey of 1,134 miles. Everyone "spruced up" a bit and flung one or more little American flag to the breeze. There was more of the good roads of Maine remaining to be traversed and from a high hill outside of Rangeley could be seen the peaks of the White mountains, among which nestles Bretton Woods, the destination of the day, 124 miles distant. Fourteen contenders were still tied for the Glidden trophy and all were keyed to a fine tension and that inexplicable desire to "get there first," although it meant nothing, was in the air. The number of checking stations was again doubled in the effort to reduce the list, but the effort availed little. But one man suffered—Ezra



FREE LEMONADE AT HOSPITABLE WATERVILLE

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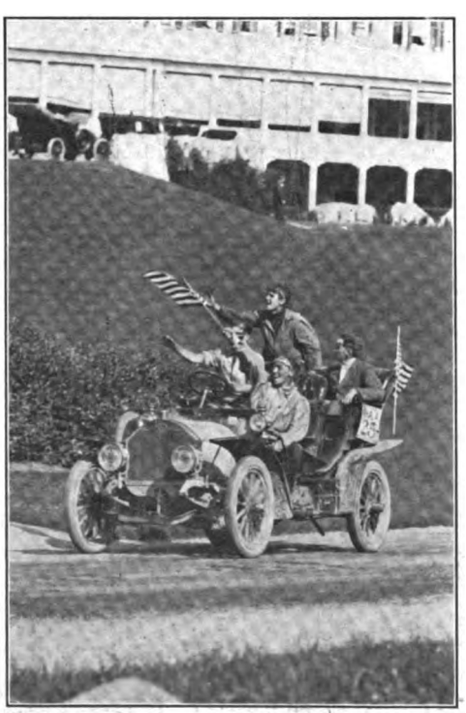


AT BRETTON WOODS, THE FINISHING POINT

E. Kirk (Thomas). By the perversity of fate, his chain snapped when almost within sight of the goal. He was six miles from Bretton Woods and though he made a quick repair and drove like the wind, he fell just two minutes short of the scheduled arrival time and two debits were charged against him—not many, but enough to spoil his perfect score. Two others fell on evil times during the day, but they were service cars—the two confetti cars that had blazed the way—Walter White's steamer and H. A. Grant's little Maxwell. In turning out for a wagon, White ran into a ditch and struck a ledge of rock that punched a hole in his fuel tank and spilled the gasolene on the pilot light. The fierce blaze that resulted destroyed all that was destroyable about the car. Grant's Maxwell ran into a ditch and buckled its frame so badly as to render it hors de combat. The six-cylinder Pierce press car happened along in the rush to "get there first" and took aboard the confetti, only to be ditched in turn. It suffered no injury but was delayed long enough to defeat the object of its occupants.

At Bretton Woods, the summer vacationists, not to mention the hotel waitresses, were out in force to see the finish. They were reinforced by a number of interested tradesmen who had journeyed to Bretton Woods for the same purpose and by some twenty odd cars that made up the Boston to Portland tour of the Bay State Automobile Association. In all, there were nearly 150 automobiles in evidence that afternoon.

Many of the tourists did not tarry amid the mountains. They trained to their homes leaving their chauffeurs to follow with their cars. Several of the contenders, however, immediately undertook a final flourish, Ernest Keeler in his perfect score Oldsmobile, making a motor non-stop run to New York in 26 hours 18 minutes, Keeler himself driving every foot of the way. C. F. Barrett, in his perfect score Columbia, performed the same feat but with the Columbia factory at Hartford as his destination. E. M. Wiley, with the Clement-Bayard which had cut so many capers that it early ceased to be a factor in the contest, attempted to follow Keeler on a similar mission but was "lost" en route.



BARRETT IN SIGHT OF THE GOAL AND WITH A PERFECT SCORE.

If any of those connected with the Glidden touring contest were more pleased and relieved when it ended than their fellows, they were the officials. Although, overnight, feelings had mellowed, there are many of them who vow that never again will they have to do with another contest of the sort at any price. For seventeen days they had been the butts of about every manner of human displeasure and protest it is possible to conceive and much of it was so uncalled for that the wonder is that they stood it out to the end. As the Motor World editorially remarked, in an event of such magnitude it was natural that shortcomings should develop and that irritability should arise, but having paid their entry fees most of the contestants appeared to

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PERCY PIERCE WHO KEEPS THE GLIDDEN TROPHY



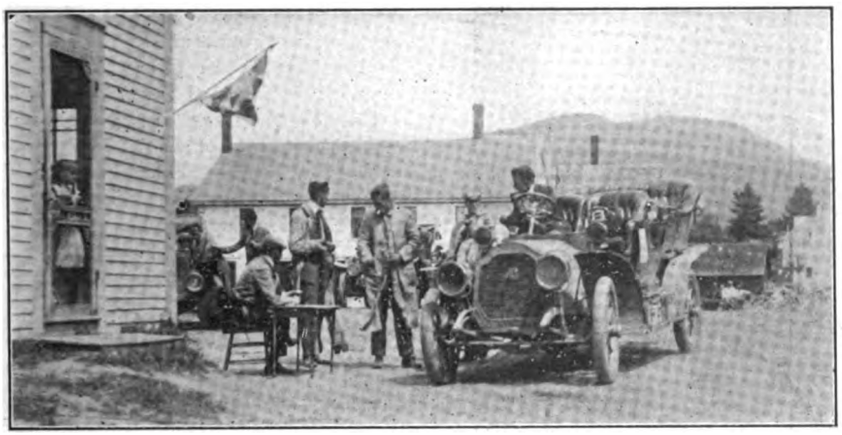
F. E. WING AND THE MARMON WITH A PERFECT SCORE

consider that the payment should entitle them to bumpless, dustless roads, and St. Regis lodging and service, including valets and perfumed baths, even in the wilderness. They made allowances for nothing; they kicked and growled about everything and if the truth be told, most of the flock of newspaper men who accompanied the tour and many of whom served as passengers in particular cars, had a lot to do with the state of affairs, or at any rate they helped to keep alive much of the irritability and ill-feeling. Some of them made a specialty of picking out the flaws and magnifying them just as others endeavored to "pay



THE BIG BAGGAGE TRUCK THAT COMPLETED THE LONG JOURNEY

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CHECKING STATION IN THE MOUNTAINS

their passage" by mentioning certain men or cars as often possible and when they suffered trouble or penalties, by minimizing or "forgetting" the trouble or of making it appear that the penalties were unfairly imposed and that the inevitable protest was justified. The men who were blocked on the road, or who were delayed by punctures, or whose watches did not agree with the checkers' watches—nearly all of them filed a diversified lot of protests and if one had a newspaper man in his retinue, the newspaper man backed him up in print or out of it, or both. The newspaper crowd was not less liberal-minded or less irritable than the trophy-hunters themselves. It was not unnatural that after a long, dusty journey that men and women should arrive tired, hungry, dirty and in bad humor, but a meal and a bath usually served to restore them to their normal state and to still their fault-findings until the next day, at any rate.

"The reporters usually wrote their stories before they had had their baths," was the way one man accounted for the "roasts" so often served up.

And talking of baths and as showing the views that prevailed, one of the participants gave it as his opinion that the officials should have regulated the order of occupying the tubs and the number of minutes they should be occupied.

About the only sufferers on the tour which bore and will have to uncomplainingly bear a lot of fault-finding that does not belong to them, are the tires. Generally speaking, no one had any trouble save "tire trouble." That term covers a multitude of sins—and, of course, tires can't talk.

The irritability that can be generated on a tour of such magnitude is amazing and breaks out in all directions. Men and their wives had spats; chauffeurs and their employers quarreled and at least one of the former quit on the spot, while others threatened to do so when it was not the owner who threatened dismissal; passengers, some of whom were carried on the strength of promises to pitch in and help in time of trouble, had differences with their hosts and vice versa; and when no one could find fault with anyone else, the officials were always ready objects on whom to vent any surplus of ill humor. Toward the end of the tour, there was less of this sort of thing, but "touching" then became



RANGELEY'S "ARCH OF WELCOME"

a feature of the trip. Fat wads of "yellowbacks" had shrunken to nothingness and every other man was "broke" and if a pawnbroker had happened along he would have done a brisk business.

The failure of the committee to arrange rates with the various hotels was one of the worst and most inexcusable of official shortcomings and the one that caused most of the growling. The rates charged were excessive and when it was found that the tour was proving a far more expensive undertaking than had been estimated, for the promoters themselves practically to engage the hotels in advance and triple the prices to the tourists in order to "clear expenses" can be viewed from several standpoints; but certainly it testified to a high order of official courage of an unusual sort. A. B. Tucker, superintendent of the tour, who bore most of the burden, issued a statement at Bretton Woods explaining some of these features and it is small wonder that he did so. "Jake" Schreyer also wanted to issue a statement denying the charge that any graft had adhered to his unmanicured fingers, but there were those who advised him that the best thing he could do was to "run right home to New York in a swift hurry" and Jacob took the advice. Permitting Schreyer to act as "pathfinder," "advance agent" or anything else was another large and wholly inexcusable mistake. Superintendent Tucker and many other of the officials were familiar with the Schreyerian method of pursuing the nimble dollar around any corner and if they fancied that Jacob, in the guise of "pathfinder" and "arrow-tacker," would lose the scent of the chase, and some scandal not result, their judgment does them small credit.

Schreyer, it will be recalled, is the man who preceded the tourists by a couple of days, supposedly to tack up direction arrows. As the Motor World stated two weeks ago, he tacked up more advertising matter than arrows and they are telling a story of how at least one surprise is awaiting Jacob when he presents his bill. As the story goes, he was to ornament the scenery with a thousand or more placards for which he was to receive a tidy sum, but unaware that one of the tourists was keeping count of the signs, Jacob became "rather careless" and posted only about 100 of the signs.



THE BROKEN CULVERT, DISCOVERED IN TIME

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WHEN "TIRE TROUBLE" COULD NOT BE PLEADED

What became of the others is one of the things that will tax the nimble witted gent's explaining capacity.

Of the few private owners who contended for the two trophies, P. S. Flynn, of Pittsburg, Pa., (Pierce) in the Glidden "hunt," and Augustus Post, New York, (White) in the chase for the Deming statuette, were the only ones to obtain perfect scores. With such an overwhelming majority composed of trade rivals. it follows that there was on occasion a deal of "trade feeling" displayed. If, convinced of error, the committee remitted a penalization, a cry of favoritism would arise in which even some of those who previously had been so treated would promptly join. One rival would sniff at another's claim of "tire troubles" and hint darkly of carrying "repair shops" as baggage and factory hands as "passengers" or there would be suggestions of having taken "short cuts" or some other manner of minimizing the other fellow's performance. But the most miserable part of all such proceedings were the boyish but vindicative vaporings hinting that the officials were favoring the White interests, chiefly because Chairman Deming and Augustus Post, of the A. A. A. Touring Committee, used White cars. There was an undue lot of prattle of that sort. Deming and Post both are good sportsmen and men of affluence and probity who have freely and unselfishly given time and money to "the cause" and the nasty suggestions ill become some of the full grown men who gave utterance to them. When they reached the ears of the quiet and urbane Windsor T. White, who was at Quebec and again at Bretton Woods to receive the tourists and who always has given generous support to affairs of this sort, he not unnaturally grew ruffled and declared the White interests would have to do with no more of them.

But even before the grumblings have ceased there is talk of the 1907 contest and already a route embracing the famous Shenandoah Valley and Gettysburg battlefield has been suggested.



KEELER AT THE END OF HIS NON-STOP RUN

Small Boy; Match; Fire.

Having heard at some time in his brief career that gasolene, if brought into proximity with a flame, will ignite, a small boy, name unknown, desired to prove the correctness of the theory, and accordingly asked a passerby for a match—sufficient material with which to begin his experiments. An automobile belonging to Clayton S. Goss was standing in front of the curb at 149 West Ninety-eighth street, New York, which caused him to evolve the idea of making a bonfire. Firemen put out the blaze, but not until the car had been badly damaged. As is usually the case, the youngster, satisfied with the result of his experiment, got away before the police arrived.

May Forbid Movable Searchlights.

Now that the District of Columbia has suceeded in abolishing all loud-sounding horns the Commissioners will turn their attention to the searchlight evil, and that a police regulation prohibiting the use of swivel or movable searchlights on automobiles soon will be passed is the opinion of Commissioner West. Another regulation that the Commissioners will endeavor to have passed, it is stated, is one that will compel all vehicles to carry lights at night, which, if passed, will cause more than one user of Washington's and Georgetown's streets to express satisfaction.

Club Formed in Cattarugus County.

The Cattaraugus County Automobile Club of New York has formed a good roads association with the following officers: President, Daniel P. Ray; Olean; vice-president, C. R. Gibson, Salamanca; secretary, George Forbes, Olean; treasurer, Claire Willard, Allegany. J. S. Whipple, J. J. Volk and Senator Fancher were appointed a committee on State legislation, and D. P. Ray, J. S. Whipple and P. C. Foley were appointed to confer with the State Superintendent of Public Works to see what can be done to improve the highways of Cattaraugus county.

At the annual meeting of the Kansas City Automobile Club, held on Monday, 13th inst., the following officers were elected for the ensuing year: President, W. W. Cowen; first vice-president, H. G. Blakely; second vice-president, I. E. Bernheimer; secretary and treasurer, E. J. McNamara; directors—Dr. E. M. Hetherington, F. H. Thwing, G. H. Davis, C. L. Boyle, B. E. Nace, B. J. Fradenburg and W. G. Coumbe.

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RELIABILITY RUN, NEW STYLE

Chicago Sets an Improved Standard—Big Fields and Many Awards.

With eighty-six starters and eighty-four finishers—thirty-six of whom completed the 104-mile jaunt with perfect scores—the first annual reliability run promoted jointly by the Chicago Automobile Trade Association and the Automobile Club of Chicago; on Thursday last, 26th ult., over the triangular-shaped Chicago-Elgin-Aurora course, may be well termed a "howling" success, if those who had charge of and those who participated in the contest are given to expressing their enthusiasm in such bohemian fashion. The committee did not anticipate such a large number of infallibles and instead of giving trophies to the winners in each of the four classes, as it had planned to do, has decided to give a medal to each of the thirty-six drivers who covered the distance on time and without a single mechanical adjustment.

Everything went off smoothly and without a hitch. The first car was dispatched from Michigan avenue and Hubbard court—the starting point—promptly at nine o'clock and at one minute intervals followed the other eighty-five. Fifteen miles an hour was the running time prescribed, divided into three sections, as follows: Chicago to Elgin, 39 miles, 2 hours 30 minutes; Elgin to Aurora, 23 miles, 1 hour 30 minutes; Aurora to Chicago, 42 miles, 3 hours. Fifteen minute controls were allowed at Engin and Aurora, but no repairs, adjustments or replacements were allowed during the stay in the controls. Where contestants were delayed in the controls longer than fifteen minutes they were charged at the rate of two points per minute and this time could not be made up on the next leg.

Each car failing to finish at the fixed schedule time was penalized one point for each minute required to complete that particular control in excess of the schedule times fixed by the committee. Cars arriving at controls ahead of time were penalized double—two points per minute. Any involuntary stops on the road lost a point for each minute the contestant tarried. This was the general system of scoring, but there were other little niceties that played Mary Helen with some of the scores. For instance, each time a touring car was obliged to change its gear, it was penalized ten points, while for runabouts, twenty points were deducted, and an involuntary motor stop meant a loss of twenty-five points. Every other involuntary stop except such caused by traffic congestion or to avoid accident meant a loss of twenty-five points. An official observer rode in each car, the "spotters" changing seats at each control.

The contenders met with no mishaps until they reached Addison, where Chairman Joseph F. Gunther, in the leading car, was surprised to find a small reception awaiting him. The "reception committee" was headed by the village constable, who had armed himself with a small American flag, a gilded star and an alarm clock. The local justice assessed Gunther $25 and five other motorists $2 each. The Chicago club has since instructed its lawyers to begin proceedings against the over-zealous Addison county constable, as the schedule had been fixed to keep the cars well within the speed limit, and they considered the arrests highhanded and entirely unjustified.

The first tourist to reach Elgin—the first control—was Mrs. C. S. Foster, on schedule time. The majority of the cars made the first stopping place with clean sheets, as the first thirty-nine miles of roads had been easy going, and the few whose scores did suffer were penalized for minor troubles.

After leaving Elgin a beating rainstorm was encountered, and nearly all were drenched to their natal clothing. The rain made the going slippery. Several accidents were reported along the way. In crossing the railroad tracks at Geneva, the driving shaft of Walter Githens's big Stearns car was broken. Up to this time Githens had lost 36 points, which practically had put him out of the running. Many of the cars reached Aurora ahead of time, but kept out of sight of the checkers until the proper time by instituting an impromptu merry-go-round-the-block.

The run home from Aurora to Chicago—42 miles—had mishaps in store for the contestants, as the roads, especially in the vicinity of Downer's Grove, were in miserable condition. Car No. 62, a big National, skidded into the ditch at the Grove, but the seven strong men which it carried put their shoulders to the wheel, and got it back on the road again. George Farnsworth, in a Cadillac, was the first to reach the goal, arriving on time, 4:30. Then followed George A. Crane, in a Knox, and J. E. Plew, in a White. After that the cars rolled up to the finish so fast that the checkers had their work cut out for them for several minutes.

One of the notable performances was that made by a Knox truck which followed the vanguard of the procession, carrying eight people. It covered the 104 miles in eight hours and a half and made only three stops—twice for oil and once for gasolene.

Four classes were provided for in the run. Class 1 was for cars not exceeding $1,000 in list price; Class 2 was for machines listing between $1,000 and $1,750; Class 3 was for cars between $1,750 and $2,500, and Class 4 for all over $2,500. All the competing machines were of standard type as per catalogue specification and fully equipped for touring. Following is the summary, showing how the cars finished, and the number of points deducted from each score:

Class 1.

Maxwell, 10 h. p., W. B. Jamieson	0
Maxwell, 10 h. p., G. W. Price	0
Holsman, 10 h. p., V. Bendix	0
Maxwell, 10 h. p., J. R. Bensley	2
Holsman, 10 h. p., W. Hildreth	24
Ford, 10 h. p., T. H. Hay	30
Reo, 8 h. p., A. J. Nicolet	69
Autocar, 12 h. p., L. Geyler	70
Cadillac, 10 h. p., R. Bolle	151
Cadillac, 10 h. p., G. Farnsworth	165
Cadillac, 10 h. p., S. E. Gillard	205
Orient, 4 h. p., J. H. Toole	——

Class 2.

Jackson, 20 h. p., C. E. Hamerly	0
Buick, 22 h. p., E. L. Weiant	0
Reo, 16 h. p., R. M. Owen	0
Northern, 20 h. p., W. J. Boone	0
Maxwell, 16 h. p., G. E. H. Holmes	0
Rambler, 20 h. p., P. Soderstrom	15
Rambler, 18 h. p., A. Levedahl	30
Rambler, 18 h. p., W. Elsom	30
Reo, 16 h. p., W. F. L. Taylor	38
Rambler, 20 h. p., L. Hodgson	50
Rambler, 16 h. p., J. F. Guenther	60
Rambler, 25 h. p., E. Maraz	115
Rambler, 25 h. p., C. Nelson	135
Cartercar, 20 h. p., J. Hemwald	145

Class 3.

Mitchell, 24 h. p., C. H. Betts	0
Pope-Hartford, 25 h. p., Eugene Kelly	0
Premier, 25 h. p., H. Hammond	0
Stevens-Duryea, 40 h. p., Harry Jones	0
Elmore, 35 h. p., G. Thurber	0
Queen, 28 h. p., C. A. Englebeck	0
Halladay, 28 h. p., L. P. Halladay	0
Stoddard-Dayton, 30 h. p., R. W. Leach	0
Haynes, 30 h. p., Frank Nutt	1
Premier, 20 h. p., W. T. Brown	3
Winton, 30 h. p., A. D. Shanks	4
Columbia, 18 h. p., J. Hertz	10
Autocar, 20 h. p., G. A. Burris	10
White, 15 h. p., R. W. Tansill	11
Rambler, 40 h. p., C. Hawes	12
Olds, 28 h. p., A. Johnson	16
Mitchell, 25 h. p., F. Hirsch	25
Ford, 40 h. p., J. B. Hedges	25
Premier, 24 h. p., Clifford Smith	25
Rambler, 35 h. p., F. C. Riggs	25
Olds, 28 h. p., Paul Henderson	30
Moline, 30 h. p., W. H. Endicott	34
Cadillac, 30 h. p., C. H. Foster	41
Dolson, 28 h. p., G. M. Bird	48
Aerocar, 24 h. p., H. R. Baker	50
White, 18 h. p., Mrs. L. T. Roenitz	77

Class 4.

Knox, 35 h. p., G. A. Crane	0
White, 18 h. p., Mrs. F. B. Draper	0
Autocar, 28 h. p., Frank Vaughn	0
Thomas, 50 h. p., C. A. Coey	0
Rainier, E. Q. Cordner	0
Dolson, 45 h. p., A. G. Bennett	0
Columbia, 24 h. p., R. Herrington	0
Columbia, 40 h. p., H. G. Cairns	0
Cleveland, 30 h. p., D. Fairbank	0
Thomas, 50 h. p., W. B. Grammer	0
Pope-Toledo, 35 h. p., R. A. Meade	0
National, 35 h. p., T. A. Kincaide	0
Thomas, 50 h. p., C. Bentham	0
Locomobile, 15 h. p., J. Marsh	0
Autocar, Miss K. D. Switz	0
Stearns, 40 h. p., Jay Devereaux	0
Buick, 30 h. p., M. Case	2
Pierce, 40 h. p., A. Monsen	4
Pierce, 40 h. p., M. Beck	8
Locomobile, 30 h. p., A. J. Banta	10
Pierce, 45 h. p., P. Hoffman	10
White, 18 h. p., B. P. McAlees	13
White, 18 h. p., J. E. Plew	25
Silent Knight, 35 h. p., C. Y. Knight	30
Apperson, 40 h. p., N. H. VanSicklen, Jr.	30
National, 40 h. p., Ralph Temple	41
S. & M. Simplex, 30 h. p., B. C. Hamilton	66
National, 50 h. p., W. F. Clemens	67
Pope-Toledo, 35 h. p., G. Lemon	72
M. Lau-Pearson, 30 h. p., Max Lau	133

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NOTCH IS TOO DANGEROUS

Few Competitors Take the Risk and Hill-Climb is Frosty—Vaughn the Star.

Bretton Woods, N. H., July 31.—Guy Vaughn, driving a 30 horsepower Stearns, and after a disastrous spill yesterday, made the fastest time over the rugged and rock-studded mountain road through Crawford Notch in the hill-climbing contest to-day which marked the beginning of the end of the addenda to the Glidden tour. Another car of the same make and power scored in the $4,000 to $5,000 class, but the victory was protested, and the protest sustained by the referee, pending an investigation by the racing board of the American Automobile Association. It was claimed that the Stearns cars are not this year's model.

It is doubtful if another hill-climbing contest will be held through Crawford Notch, as it is universally agreed that the winding mile and a half of mountain road is too dangerous.

The contest, arranged by the Bay State Automobile Association and W. J. Morgan, was originally scheduled for yesterday, but it rained and only three cars made the ascent before the program was called off. F. H. Allen and Dwight Huss went up in Oldsmobiles. Allen made the run in 4 minutes 24 seconds; Huss got stalled and was timed at 6:29. J. H. Jones, in a Knox, was timed at 4:25. Yesterday's storm did not leave the course in very good condition, but despite this and the natural precarious going, some good times were made in the various events. The hill has a grade averaging 15 per cent., and in some places attains 30 per cent.

Guy Vaughn's clever work with the steering wheel drew much applause and his sensational drive was the only feature of the afternoon. The big, good-natured youth has earned an enviable reputation during the last two years and his performance to-day showed more than ever that he has nerve and grit as well as stubborn endurance. Vaughn and his Stearns car was the only contender in the free-for-all, but he made the fastest time for the course, the timers clocking him at 2 minutes 48 seconds—an average of about thirty miles an hour. A. E. Morris, of Boston, who drove one of the Stearns, beat the New Yorker in the other event, but a bit of hard luck put him out of the running in the free-for-all. He stripped his gears while preparing for the open scramble.

It was in the class for stock cars listing between $4,000 and $5,000 that the protests cropped out. The best time was made by Morrison in 3:04, with Vaughn second in 3:08⅘. Two 40 horsepower Columbia cars driven respectively by Harry Woolaver and C. E. Cope, ran third and fourth. J. A. MacAlman, the Boston representative of the Columbia cars, filed a protest, claiming that the Stearns cars were not regularly listed stock cars as per 1906 catalogue, the cylinders measuring 5⅜x6⅞ inches. The protest was allowed by the referee, but F. E. Stearns, who entered the winning cars, will appeal to the racing board. Mr. Stearns contends that the cars are stock machines within the meaning of the rules and that they are the first of the regular Stearns model for 1907.

There were fewer mishaps than were expected. F. F. Cameron bent the front axle of his Cameron and had to drop out, and R. Crawford, after climbing the hill in one event, was ditched in another. Misfortune came to the Napier camp before the events started. While William Bates was warming up his machine, a loose stone lodged in the mechanism and sheared the pump sprocket off the cam shaft.

Honors in the various events were well distributed, the only regrettable fact being that the events were not well filled. George Draper at the wheel of a 24 horsepower Packard, had a walkover in the $3,00 to $4,000 class. His time was 3:42. The best time in the event for cars listing between $2,250 and $3,000, was made by C. F. Barrett, who drove a 24 horsepower Columbia up the tortuous course in 3:46⅘. H. E. Wilson, 35 horsepower Rambler, was second in this class, making the hill in 4:00⅗. K. H. Jones, 30 horsepower Knox, was third, and A. L. Kull, 35 horsepower Wayne, finished fourth.

C. H. Larson, 28 horsepower Olds, had a close fight for first honors with R. Crawford, 24 horsepower Crawford, in the $1,750 to $2,000 class. Larsen was clocked at 3:59⅘ and the timers gave Crawford 4:01⅗. A 24 horsepower Premier, driven by G. Crittenden, won the event for machines listing between $1,200 and $1,750, with William Roswell, 24 horsepower Crawford, second. Crittenden's time was 4:03, and Roswell's, 4:18⅘. H. Ernest Rogers, in a Stanley steamer, was adjudged the victor in the $850 to $1,200 class. He made the ascent in 3:11⅗, with H. J. Kohler, 22 horsepower Buick, second in 4 minutes. The summary follows:

For cars costing between $3,000 and$4,000—Won by H. Ernest Rogers, 20 h. p. Stanascent in 3:11⅗, with H. J. Koehler, 22 h. p. Buick, time, 4:00.

For cars costing between $1,200 and $1,750—Won by G. Crittenden, 24 h. p. Premier, time, 4:03; second, William Roswell, 24 h. p. Crawford, time, 4:18⅘.

For cars costing between $1,750 and $2,250—Won by C. H. Larsen, 28 h. p. Olds, time, 3:59⅘; second, G. Crawford, 24 h. p. Crawford, time, 4:01⅗.

For cars costing between $2,250 and $3,000—Won by C. F. Barrett, 24 h. p. Columbia, time, 3:46⅘; second, H. E. Wilson, 35 h. p. Rambler, time, 4:00⅗; third, K. H. Jones, 30 h. p. Knox, time, 4:02⅘; fourth, A. L. Kull, 35 h. p. Wayne, time, 4:56⅘.

For cars costing between $3,000 and $4,000—Walkover for George Otis Draper, 24 h. p. Packard, time, 3:42.

For cars costing between $4,000 and $5,000—Won by A. E. Morrison, 30 h. p. Stearns, time, 3:04; second, Guy Vaughn, 30 h. p. Stearns, time, 3:08⅘; third, J. C. O'Brien, 40 h. p. Columbia, time, 3:37⅘; fourth, W. W. Burke, 40 h. p. Columbia, time, 4:01.

Free-for-all—Walkover for Guy Vaughn, 30 h. p. Stearns, time, 2:48.

Match Climb up Minneapolis Hill.

First honors in the automobile hill-climbing contest at Riverside hill, Minneapolis, Minn., under the espionage of the Minneapolis Automobile Club, on Sunday of last week, 22nd ult., went to the Stoddard-Dayton car entered by H. S. Haynes and driven by Ernest Simpson. The match resulted from the open club contest held on May 19th, in which the Mitchell, entered by T. C. Evans, won from the Olds, entered by J. J. Barclay, by one-fourth of a second in one of the class events. Sunday's match was arranged primarily to give Barclay a chance to "get revenge" on Evans. He got it, but Haynes scored over both. It was a friendly contest, favored by some little trade rivalry.

Simpson, who drove the Mitchell to victory in the club contest, drove the Stoddard-Dayton in the match race and cut under his former record in both heats. In the May contest Simpson carried off the Class III cup for Evans in 43½. The Olds finished in 43¾. It was this close margin which gave rise to the controversy which was settled Sunday afternoon. Simpson, driving against the car which he shot to victory in May, made the same course in 40⅗ to 42 seconds, Sunday.

For second honors the Olds won from the Evans car in both heats. The first was taken by the narrow margin of 45 to 45⅗ seconds. The second heat showed an improvement for the Olds and a falling off in form for the Mitchell. The time was 44⅘ seconds to 57 seconds respectively.

Protests were frequent and free throughout the preliminaries. In response to charges that "energine" was being used, the officials ordered all three contestants to empty their gasolene tanks and refill them with straight gasolene provided by the club. Charges were also made that the Stoddard-Dayton was a special car sent from the factory for the contest. The protest was filed and the car was allowed to enter with the understanding that its cylinders should be measured later to see if they corresponded to the catalogue measurements for cars of that model. A careful investigation after the contest showed that the winning car was not a special with extra large cylinders, but a regular "stock" car, and the award of first honors was confirmed.

In addition to the record for Class III over the Riverside hill course, Haynes carried away a $50 silver loving cup.

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OLDFIELD ROUSES HOMEFOLK

Gives them a Taste of Real Racing—And Coey Bets a Mil—$500, Real Money.

Before a crowd of 3,000 enthusiasts, Barney Oldfield and his "Green Dragon" defeated Ollie Savin, driving C. A. Coey's "White Streak," at the race meet at Toledo, Ohio, on Sunday, 30th ult., in the five-mile sweepstakes for a purse of $1,000.

The meet was promoted by the Toledo Motor Racing Association, and drew a large crowd, all of whom went with the expectation of seeing Barney Oldfield—a Toledo "boy" himself—throw dust and lubricating oil in the face of old Father Time and put space and a few eons of the future into the past tense column, and in this they were not badly disappointed, though from the pandemonium of snorts and pops and paroxysms incident to the speed contests, Barney's records emerged without a scratch and at no time were in danger of annihilation. However, Oldfield was an easy winner in each heat which he entered and the enthusiasm of the home folks was not stinted or begrudgingly given. The track was in poor condition and a plastic dado encircled the course for a space of ten feet next to the pole, the result of the terrific outburst on the part of Jupiter Pluvius Saturday afternoon and night, the sunshine and wind having put an oak tan finish on the speedway.

In the chief event of the afternoon—the $1,000 sweepstakes—the crowd saw some real automobile racing. In the first heat Savin ran against H. W. Freeberg, who travels in Oldfield's retinue and drives a special Buick, which he has christened the "Space Eater." Both ran neck and neck for the first two miles, then Savin slowly forged ahead and won out in 7:02. Oldfield ran in the second heat, at three miles, against Freeberg, and won easily, though Freeberg drew several leads on the champion that made the crowd tingle with excitement. The final heat saw Oldfield and Savin as the contenders. Just previous to the start it was "announced" that Coey had just bet Oldfield $500 that Savin would beat him and naturally this whetted the appetites of the throng. The heat was well contested. First Savin would nose out a lead—to employ the vernacular of the trotting track—to have it ruthlessly taken away the next moment by Oldfield. This kept up until the home stretch was entered when Oldfield let out the kinks and flashed under the wire first by a wheel's length. Oldfield then attempted to lower his record for a mile on a half-mile oval, but owing to the condition of the track, failed, going the two laps in 1:13.

The five miles for fully equipped cars, styled the Toledo Endurance Derby, was tame compared with the Oldfield heats. There were only three entries and one of the cars went lame before the finish. It was won by Louis Litchie, who drove a Cadillac, B. O. Gamble at the helm of a Winton, finishing second.

The three-mile motorcycle race brought out four starters, and the race was won in clever fashion by Frank Brown, astride an Indian, in 5:23. The also rans were Ernie Drown, Indian; F. L. Waltz, Marsh, and E. Waltz, Wagner. Several other eventswere down on the program for decision, but they were called off on account of the poor condition of the track. The summaries:

Three miles for motorcycles—Won by Frank Brown, Indian. Time, 5:23.

Five miles for fully equipped touring cars—Won by Louis Litchie, Cadillac; second, B. O. Gamble, Winton. Time, 9:25. Also ran—William Finley, Pope-Toledo.

Five-mile sweepstakes, for $1,000 purse—First heat won by Ollie Savin; second, H. W. Freeberg. Time, 7:02. Second heat (3 miles)—Won by Barney Oldfield; second, H. W. Freeberg. Time, 3:57. Final heat (3 miles) won by Barney Oldfield; second, Ollie Savin. Time, 3:53.

One mile exhibition—By Barney Oldfield, driving 60 horsepower Green Dragon. Time, 1:13.

Washington Law in Supreme Court.

Ray Cissna, of Spokane, has just filed notice of an appeal to the Supreme Court of Washington from the decision of the superior court of Bellingham, to ascertain whether Spokane and other cities in the State have the right to pass ordinances governing the speed of automobiles. Cissna was arrested for the alleged violation of a city ordinance, and he is now attacking the law on the ground that it is at variance with the State law. The justice before whom the trial was had upheld the ordinance and this contention was sustained by Judge Neterer in the Superior Court. Now the Supreme Court is asked to pass upon the validity of the law.

Moore's 10,000 Miles Tour.

Frank Moore, son of Hon. Miles C. Moore, first governor of Washington, and a party of friends, are completing a 10,000 miles automobile trip, from the Mexican border to British Columbia by way of Spokane. Moore left Tian Juana, May 11, making the run to Los Angeles in two days, and from that point to San Francisco in three days. He reached Portland, Ore., June 27, and left for Walla Walla, Wash., July 8, the trip occupying four days. He expects to reach Nelson, B. C., early in August.

Newport's Floral Fete and Races.

Newport will hold its flower carnival and beach race meet this season on Monday next, 6th inst., the course being on Sachuest beach. Eight classes have been provided for; cups valued at $50 and $25, respectively, are the trophies offered.

TO PROTECT THE MULES

Hitched or Unhitched, this Georgia Senator is their Friend—His Remarkable Bill.

If the bill introduced by Senator Alsobrook in the Georgia senate last week passes that body the speed of automobiles and motor vehicles of any sort in that State will be considerably slackened on roads between incorporated towns. Not only does the bill restrict the speed limit, but also places certain restrictions upon chauffeurs when approaching or passing teams.

According to the provisions of the measure the speed limit must not exceed ten miles an hour. Upon approaching any one driving or riding a horse or mule—oxen, a common form of conveyance in Georgia, are not mentioned—the car must be brought to a full stop at least 150 feet before, and the engine must be brought to a full stop until the object passed is 50 feet in the rear.

When approaching driven or ridden horses or mules from the rear the driver of the machine must sound his horn or whistle when within 150 feet of the object to be passed, where he must "check his speed, slacken and continue to decrease the mileage per hour so that the owner of the team can unhitch and get his team out of the way." Then the car must pass it at a speed not greater than two miles per hour. If the team to be passed is hitched then the motor vehicle must stop 200 feet away, so, it is set forth in the bill, as to allow the owner to have his team under perfect control.

All owners of motor vehicles must register with the clerk of the superior court of their respective counties, that official to issue identification numbers, one and one-half by two inches in dimensions, which must be attached to the machine in a conspicuous place before it will be allowed to be run in the highways of the State. Violations of the law, if such it becomes, are to be punished as misdemeanors.

Long Beach to Try Again.

The automobile races scheduled for July 21 at Long Beach, L. I., by the Long Beach Country Club and postponed on account of rain, will take place Saturday of this week, at noon. No cars except those competing in the races, will be allowed on the course, and cars entered in the races must report to the committee in front of the club house not later than 12 o'clock.

May Race on Labor Day.

The oft-deferred race meet of the New Jersey Automobile and Motor Club, which was scheduled for next Saturday afternoon has once more been postponed. It is probable that the meet will be held on Labor Day, if the club can secure the use of the Weequaic Park track on that date.

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MOTOR WAGONS FOR GARBAGE

Chicago Official Discusses the Subject and Thinks they will Solve Many Problems.

Chicago may be the first city in the world to officially adopt and install an automobile garbage hauling service, if the ideas advanced by Comptroller McGann and Superintendent of the Streets Doherty, who are investigating the feasibility of the plan with a view of recommending its adoption, is received with favor by the members of the city council. The high cost and scarcity of good horses led Comptroller McGann to make the sugestion, and since making a preliminary investigation, he has become quite enthusiastic. The municipal garbage hauling automobiles will, he believes, furnish better service, and haul more garbage and more quickly, than can horses. Superintendent Doherty also is a firm believer in the utility of the automobile, and is interesting himself in the plan.

Under a contract recently signed by the city for the reduction of the garbage, the city must deliver all garbage at the reduction plants in air-tight tanks or specially constructed wagons or cars. Thus far the city officials have experienced considerable difficulty in securing the necessary horses, which has favored Comptroller McGann's scheme.

"I believe it would be wise for the city to install enough automobiles, built with air-tight garbage tanks, for the hauling of the refuse rather than to try and put in a municipal teaming system," he says. "I am confident that heavy, well-built motor trucks will carry more garbage than a team of horses can haul, make better time and prevent the necessity of sending a large part of the garbage from specially erected stations by railroad to the reduction plant.

"Horseflesh is so very scarce and so expensive that it is going to be very costly to the city if we have to buy sufficient teams to handle the garbage. We can have automobiles built so that they will carry the garbage in a thoroughly sanitary manner and transport all our refuse on these machines. One of those big truck machines can carry an air and water tight tank with a capacity several times larger than a wagon tank which a team of horses could haul. These tanks can be fitted on the trucks so that they can be lifted by derricks from the machines into the reduction plant vats, emptied and placed back on the machines without any difficulty."

Superintendent Doherty also believes the automobile plan a most feasible one.

"I can not see why the automobiles shouldn't be better for hauling the garbage than horses," he said. "The big mercantile firms using motor trucks on which they haul immense loads and we can secure similar machines and they won't cost much more to maintain, or perhaps not as much as horses."

As soon as he returns from his vacation the matter will be placed before Mayor Dunne.

Armored Car for the Czar.

Stories that the Czar has ordered an armored automobile to be used as the vehicle of his daily travels were thought to be only the vaporings of the overheated cranium of some facetious penny-a-liner, although newspaper reports of the condition prevailing in Russia made such a course seem natural. However, they are now confirmed by a press report from Germany which states that the car is being built at Buda-Pesth at a cost of about $20,000. It is to be fully armored and entirely bullet-proof, besides which it is to have a guaranteed speed of 60 miles an hour or better.

The cost of building is not to be devoted entirely to the car itself, by any means, as its interior will be finished in a manner befitting the state of its royal occupant, no luxury that ingenuity can crowd into the necessarily limited space being omitted. Technical details of its construction or armoring are not forthcoming, but as the armored type of car has come to be quite common in Europe during the past year or so, it is hardly likely that it will differ radically from models already turned out. It is said to be the intention of the Czar to use the vehicle for travelling about St. Petersburg and to his country estate at Tsarke-Seloe.

New York to Impound Unguarded Cars.

Upon the advice of Corporation Counsel Delaney to the affect that within the meaning of the statute automobiles that are left unguarded at the curb are encumbrances, Commissioner Gibson, of the New York Street Cleaning Department, recently issued an order to the inspectors of the department that cars left standing in the streets and unguarded for any length of time were to be treated the same as any other form of property abandoned under similar circumstances and removed to one of the three municipal encumbrance yards.

The new order is not intended for owners who leave their cars standing in front of their homes, but is directed against garage keepers and repair shops. The order also contained a warning to all violators before any cars thus found were to be removed, but despite this, three machines were taken to the yards on Tuesday last. Of these one is still at the Fifty-sixth street yard, another, which was a runabout, was returned without an assessment and the owner of the third was assessed $5 for the privilege of regaining possession of his machine, but on the plea that $4 was his entire available cash capital at the moment, the price was reduced to correspond with the needs of the situation, so that this new scheme of "getting at" the automobilist appears in its true light right from the start.

DEVICES TO CHECK SPEED

One Automatically Punctures Tires, the Other Performs a More Amazing Stunt.

Inventive genius is now busy devising some means of bringing the errant driver to a halt whether he wills it or not. Needless to add, most of them are laughably absurd as is illustrated by the following instances, both of which, strangely enough, hail from France. One of them is a sort of automatic tire puncturing speedometer, as it consists of an instrument that is affixed to the side of the car just over one of the drivers. This keeps tab on the speed and the moment the latter exceeds a certain set limit, it immediately jabs a big pin through the tire and compels the driver to come to a halt.

The second one takes the same means of bringing the car to a stop and is said to be the invention of the mayor of a small French town. It consists of a stout plank extending across the roadway and countersunk therein so that unless the powers that be desire it otherwise, the car may pass unharmed. If a driver shows symptoms of not heeding the signal to pull up, however, manipulating a lever turns the board over and presents a regular cheveaux du frise on a small scale. The inventor guarantees that any car passing over his patent stopper at speed will puncture all four tires and will not be able to proceed much further without halting for repairs.

The German government offered a substantial prize last year to the inventor who would perfect a device by means of which the police could immediately see whether a car passing them were exceeding the legal limit or not, and a bright Teuton evolved a large automatic affair like a railroad block signal for the rear of the car, showing different colored discs for the different speeds, but in the opinion of the Frenchmen, their inventors have this beaten all hollow.

Extent of Britain's Motor Population.

According to the official registration lists there were 45,490 automobiles licensed in Great Britain on June 30, of which total Wales, Scotland and Ireland only account for a little over 6,000. Under the title of heavy cars are classified such vehicles as 'busses and trucks, their number reaching the very respectable figure of 2,698, which are not included in the total already mentioned. These figures represent an increase of almost 50 per cent. in the case of pleasure cars, or from 31,129 but a year ago and very much more in the case of the heavy vehicles which rose from 868 in 1905. In 1904 there were but 18,340 motor vehicles in Great Britain altogether. These statistics will figure in the attempt to repeal the existing law, generally considered second in absurdity only to its predecessor, abolishing automobiles altogether.

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STAY AWAY FROM SPAIN

American Motorist Invades Brigands' Territory, also Gibraltar, and Offers Advice.

Walter Hale, of New York City, has just arrived in Paris after an interesting 1,200 mile tour in Spain and France in a 20 horsepower Cleveland.

Mr. Hale, who has toured in nearly all parts of Europe, declares that his Spanish experiences have been his worst, and he urges automobilists contemplating trips in Spain to consider the matter carefully before entering upon what is likely to be an unpleasantly unforgettable experience.

"We landed in Gibralter," says Mr. Hale, "and because of military regulations of bridges, gasolene, etc., it was a week before I got away, and then I put my Cleveland on a boat and went to Malaga. Mine was the second car ever seen in Gibraltar, and the other belonged to Lord Charles Beresford. I suppose he had an easier time of it, but it takes influence about as great as his to get an automobile away from the "Rock."

"When at last we got to Malaga I hoped for better things, but sometimes I wished I was back in Gibraltar. The country to Grenada over the Sierra de Alhama and further on reminds one of the deserts of Arizona and New Mexico. We forded fifteen rivers in one day—that's a sample—not just crossed them, you understand, but forded them all. The roads are rough and rocky and the hotels along the way are bad."

From Granada Mr. Hale went to Basa, through the bandit country. He made the trip with his wife, Mrs. Louise Closer Hale, authoress of "A Motor-Car Divorce." They were warned of the dangers, but Mr. Hale preferred to take the risk rather than turn back.

It was at this exciting stage of the journey that they had one of their few breakdowns, the long-suffering igniter refusing to work after being plunged into water in an unusually deep ford. Their halt came at night, in the rain, and, just when the danger of bandits seemed very near and real, a man with a gun on his shoulder and murderous-looking knives at his belt appeared. Before Mr. Hale could get out his money and his watch the man reveiled himself as a rural guard on the lookout for bandits, and his watch the man revealed himself mobilists until a passing wagon took them to a village several miles away. The man guarded the automobile for the rest of the night and the next morning Mr. Hale returned with mules. The daylight disclosed a cross set up by the roadside a few feet from the stalled automobile to mark the spot where brigands lately murdered a traveller.

"That was our only serious breakdown in 1,200 miles," said Mr. Hale, "and I am well satisfied with my American machine. My tires were American, too, the Dunlop, and I had only three punctures and arrived in Paris using the same tires I started out with. But it is a trip I should not care to repeat. I have been through Mexico, and I was in Venezuela during the blockade, but I have never known a wilder country or one where civilization seems so far away. English is not spoken anywhere except at Grenada, and they are as ignorant of French. Garages are few and far between, and often gasolene is procured only with great difficulty."

Mr. Hale, who will remain in Parisseveral weeks before returning to America, says that in the south of France he found several garages and hotels where a conspicuous sign announced that Esperanto —the so-called universal language—was spoken.

Motorist Files an Odd Suit.

The courts of Camden county, New Jersey, will be called upon to settle a nice point in automobile ethics and place the value upon a day's pleasure in the car. Hiram G. Halliger, a builder of Camden, has brought suit against the Public Service Corporation for damages to his touring car caused by a collision with one of the corporation's trolley cars. He fixes the cost of repairs to the machine at $200, but adds to the bill $340 damages, or $20 a day for seventeen days he was deprived of its use for pleasure.

Hallinger's counsel is of the opinion that the claim will be made good. He says that when a man sues a corporation for damages for the killing or injury of his wife he includes an item for the loss of her services. A woman makes the claim for a maimed or mangled husband, and it is contended that Hallinger can show that while he was unable to use his touring car he could not get around nearly so satisfactorily. He had to resort to the defendant's trolley, which he considers adding insult to injury and sometimes he even had to walk, which was ignominy in itself.

Corduroying to Save a Bridge.

County Commissioner Dan Abraham, of Seattle, Wash., has taken certain steps to prevent the local automobilists from exceeding the law when crossing the Spokane avenue bridge, thereby gaining for himself the cordial and lasting enmity of the fraternity, and all other users of the road, which is considered the best in the city. The bridge, which in reality is a plank road, has been corduroyed by the application of four-inch planks, laid at brief and regular intervals. This prevents it from being traversed at speeds faster than a slow walk, and practically deprives the motorists of its use. In retaliation, they are talking of violent measures which may take the form of heavy damage suits, since the county is responsible for the condition of the thoroughfare.

HOLDS OWNERS GUILTY, TOO

New York Court Delivers an Opinion and Man and Master Get Heavy Sentences.

By a decision handed down in the Yonkers City Court last week, it is evident that at least one New York judge has decided to follow the lead of Massachusetts in holding the owner guilty as well as the chauffeur, when both are in the car at the time the law is violated. The week previous Judge Bealls, of Yonkers, had sentenced Frank Busold, a chauffeur, to two months' imprisonment in the King's County Penitentiary for having run down a carriage and injuring its occupants, while he held his employer, George W. Bryant, under bail to ascertain whether or not he could be punished for the same offense. Having made certain of this, a similar sentence was passed upon Bryant, on the 28th inst. An appeal was immediately taken to the county court and pending the outcome of this, the sentence of imprisonment is stayed.

In sentencing Bryant, Judge Bealls delivered a lengthy opinion which is in part as follows:

"The criminal liability of an owner of an automobile who may be present in the car at the time of the commission of a crime of this character is governed by the same principles of law that apply to any other employer under similar circumstances, and the question must be determined by the application of these principles to the facts of each individual case.

"Under the penal code, if the owner, present or absent, commands, incites, encourages, or perhaps permits with full knowledge thereof, one under his employ and control to violate the penal law in the management of the owner's property, he is subject to the penalties of the law and may be proceeded against as a principal. It is an unsound statement of law to say that if the owner of an automobile should direct his chauffeur to drive the machine, irrespective of consequences, to a specified point at a highly excessive and dangerous rate of speed, and if the latter, acting upon these instructions, should do so, thereby endangering the safety and lives of all others using the highways, the employer should escape from the consequences of his command and of his participation in the violation of the law.

"I find the defendant guilty of violation of the section of the city charter above referred to. In considering the sentence to be imposed the court is moved by several conditions, and prejudice against automobiles is not one of them. The automobile is here, and to stay. But it must be under such proper legislative regulations duly enforced by the courts as will insure safety to the persons and property of others. The majority of automobilists recognize this. Upon the careless minority,

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as evidenced in the case of this defendant, fines have proved to be ineffectual. I now sentence the defendant Bryant to two months' imprisonment in the King's County Penitentiary and to pay a fine of $50, or if not paid to be imprisoned one day for each dollar thereof."

The Motoring Millionaire.

A $75,000 automobile rolled through the $60,000 bronze gates and up to the $35,000 winding avenue to the $20,000 marble steps, relates the Newark News. Descending from the machine, the billionaire paused a moment to view the smiling $500,000 landscape.

Across the $90,000 lawn a $125,000 silver lake lay sleeping in the shades of early evening, and beyond it rose a lordly $80,000 hill, whose crest cloaked the forest at an expense of $200,000, glowed in the last golden rays of the setting sun.

The billionaire sank luxuriously into a $2,000 ivory chair and rested his feet on the rosewood railing of the $160,000 veranda. "It is pleasant," he observed, "to get back to nature once in awhile. After the cares and worries of the business day, I certainly love to run out to this quiet little $60,000,000 country club of ours and taste a bit of simple life. It is good to keep in touch with the soil; for what is man but dust, after all!"

Feeling restored, he passed in through the $400,000 doorway to his $1,500 dinner.

Three Ways to Fill Holes in Bodies.

A carriage man gives these simple methods of filling holes or cracks in vehicle bodies:

When the job comes in and before anything else is done, clean out the holes as much as possible and drive a few tacks where needed a trifle below the surface. Take dry whiting, mix with oil and japan one-half each. Pick some curled hair or moss and mix it with the paste, then force the mixture into the holes as tightly as possible leaving it a little below the surface. Run the knife plate through the center both ways so as to have a slight opening for the air to enter, so that it will dry more quickly and evenly. When the other work is done this will be hard enough to re-putty in the regular way. The oil will act the same as the regular whiting does in the glazing or sashes or in nail-holes in house-painting, while the japan will force it to dry more quickly, and the hair together with the nails will hold it in place so that it cannot drop out through jarring.

Another way is: if the holes or splits are not too large, use the common sealing wax, which is sold by the pound. Clean the holes or splits and have them perfectly dry. Put a match to the wax, and let it drop into the holes and splits and fill them up, then level with a sharp chisel. If the holes are large drive tacks in a slanting position below the surface and then drop the wax around them. The tacks hold it in place.

Still another way is to use "Lewis' Perfect Dutchman." This composition is similar to sealing wax but is specially prepared for the purpose. It is made finer and tougher so that when a corner in a body is wanted it can be put on and it will remain as placed.

Lubricating the Fan Bearing.

Oil the fan bearing occasionally. It is a relatively unimportant part of the motive power—this assistant to the radiator, except on those cars where the allowance of water and cooling surface has been reduced to a point where an auxiliary is indispensable. Nor will the slight extra amount of power running it dry will entail have any ill effect on the output of the engine itself, but at all events, it will run better if lubricated. Unless it is provided with an ample sized oil cup, the high speed at which it runs makes oiling it an operation that requires repeating more frequently.

"Clipping the wings" of automobiles that refuse to stop when called to do so will not prove a profitable pastime for over-zealous Chicago policemen, if the case of one of that city's "finest" is to be taken as the criterion. The park policeman who put a bullet through the tire of an automobile when the chauffeur refused to halt when so ordered, has been suspended.



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THINGS THAT MAR BODIES

What They are and How they may be Avoided or Remedied.

Ordinarily the plugs in automobile bodies do not give the painter much worriment, as the plugs in driving are forced down upon a shoulder cut in the wood during the process of boring, below which, and with a clear working space between, the screws are set. A 1-16 or a ⅛-inch space is usually provided between screw top and plug bottom, and this, apparently, should serve to obviate the difficulty which once gave the painter a great deal of work and solicitude to control. However, with the advent of a more scientific method of driving plugs, the plug-protruding problem has by no means wholly vanished, because it has thus far been quite impossible to control the law of contraction and expansion, and so long as this continues we may expect to hear more or less from this source as the painting and varnishing proceeds, says the Carriage Monthly.

An old automobile body builder, in conversation with the writer, says that contraction and expansion are very far from being the same. While a white wood panel may have white wood plugs, if the plugs are not taken from the same board that furnished the panel, contraction and expansion may not be expected to be the same. Indeed, they will not be the same. Among first-class wood workers, he asserts, it is the rule unalterably observed to have the grain of the wood of the plugs run with the grain of the wood of the panels. Ignoring this rule, it is said, leads to a premature manifestation of the shape and formation of the plugs.

As a matter of fact the authority above quoted makes the statement that a plug cut from the same board that the panel is taken from, and set with its grain running at right angles to that of the panel is almost certain to obtrude itself into prominence at an early date.

The shrinkage of putty in deep screw holes upon parts of vehicles where plugs are not available is due in large part to a wrong practice of puttying. Into these deep cavities a mass of putty is jammed, and there expected to dry as quick as the putty smeared over shallow ruptures. It is easy, when you pause to reason the theory to its conclusion, to understand the outcome. The deep undried mass of pigment when coated upon, continues to dry, and while so doing, it shifts its formation. In other words, it shrinks, and the shrinkage causes a "cave-in" of the surface directly over the cavity.

A deep hole or surface rupture should be puttied in this way: Fill the hole two-thirds full of putty, and then with the blade of your penknife make a couple of slashes across the mass at right angles, thus quartering the mass, and bringing four sections of it into contact with the air. It will dry rapidly thus treated, and at the expiration of twenty-four hours the hole can be filled completely with putty, after which, when dry, it may be surfaced down without fear of shrinkage and sinking in of the surface.

Putty that is dry from top to bottom rarely shrinks or swells when worked over, provided, of course, it is made of good materials and proportioned with a just balance of all its ingredients. Probably no small share of the bulging and shrinking putty complained of in the automobile trade has its inception in the great haste that has recently, and still continues to characterize the painting of the horseless vehicles.

Tempering of Steel Cutters.

Steel cutters may be hardened and tempered by different methods. A method that may answer well in one case may not answer in another, for the reason that the steel in one case may contain more carbon than in the other. One method of hardening and tempering steel cutters is as follows: Heat the cutter to a low red heat, and then gradually put it in cold water. If plunged into cold water suddenly, it becomes very hard. Heat again, remove from the fire, and let the cutter cool until it becomes a brownish yellow color. Another method is to heat and mix together two pounds of powdered resin in about one pint of oil. Melt about a half-pound of good tallow, and mix with the above by stirring well. Heat the cutter and plunge it in the mixture, and allow to remain until cold. Heat the cutter again gently, then put it into hot water, and allow to remain cold. Should a cutter be found to be too soft, it may be hardened by cooling it down in water to which has been added salt; the stronger the salt water the harder will be the cutter.

Care in Using the Hammer.

Care in the use of the machinist's hammer is one of the first things the amateur tinker must learn when working around the engine. With it he can do more damage in half an hour than a good man can repair in half a day. His first inclination is to use this form of persuasion on any and every refractory part and it is a desire that must be overcome. Not only should the hammer itself not be used on any metal parts without the intervention of a block of wood to protect the surfaces, but care must be exercised to avoid hitting other parts through that inaccuracy of aim that distinguishes the unskilled wielder of this tool. A poorly aimed blow that misses its target and lands on one of the valve push rods or a similar part with any degree of force is apt to cause trouble of an expensive nature. It is a good thing for the novice to be sparing in his use of the hammer as a cure-all. Do not resort to it unless really necessary and do not use a sledge hammer blow where a light tap will do the work.

TALE OF THE TESTER

It has to do with an Early Effort to Save Freight Charges.

"It's your turn now," said the last speaker to the silent one of the group. They had been telling tall stories of automobile adventure and the role of raconteur had gradually travelled around the circle until but one dot on its circumference was left. He had sat entirely unmoved during the recital of thrilling night runs, narrow shaves from death and destruction and ingenious makeshifts that had been improvised by the authors from next to nothing at all to keep the engine running. Except the faintest glimmer of a smile that had deepened slightly as the borderland of truth faded further and further away on the horizon as each story teller had lined up for action and brought his batteries to bear, he had given no sign whatever that he was aware of what was going on around him and he still sat unmoved.

"Come. There's no passing in this game. No rules were agreed upon, but each man has done his share. Let's hear from you," suggested one of the group.

"No excuses accepted," chirped in another before there was time to answer. "If you left your manuscript home and haven't got enough notes on your cuff, you'll have to make up something as you go along, or—'wet the crowd,'" he concluded with a sentiment that was promptly echoed around the circle.

"Ever hear how I started the business of delivering cars to their owners over the road instead of paying freight on them?" asked the beleaguered one, capitulating without a word and starting off without any introduction.

"Well, that was the time I was with the Blank factory there in the northwestern part of Ohio—you all know the concern," he continued, without waiting for an answer in the negative. "They had only broken into the automobile game about a year before that and I broke in with them, for I had come fresh from a lathe in the machine shop to testing cars on the road.

"No. We didn't make any hundred-mile runs just then for the purpose of testing out a car. We ran back and forth on a mile or so of road near the factory—never got further than a walking distance from headquarters and there were so many times that we did have to walk that distance that we didn't have time to get ambitious and want to break out into the unknown country. I suppose that's how the private factory track was originated. The machines had a habit of breaking down so often that it wasn't good business to have them out on the road where the public could see us tinkering over them everlastingly. A factory not far from us built a mile track around the works to test out cars and put a ten-

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foot board fence around the whole thing with spikes on top and a watchman at the gate so that no one had a chance to see those cars until the makers were ready to let them.

"Well, that hasn't got much to do with my story.

"We were building a great big one-lunger then. In fact, the concern pinned its faith to the single-cylinder machine and looked forward to a time when there would be nothing else. It was a sort of hybrid runabout, for American designs were then of a most original sort and we were about as different from the rest of them as we could well be. One of the fellows dubbed the engine the "cannon" and that name has stuck to it ever since. It was certainly a car with a cannon it it when you got her going up-hill slowly.

"You know there were people with so-called factories that were assembling parts in lofts and warehouses and some that had alleged machine shops in which they would build a car whenever they got an order, which was not often. We were not that kind. We were really building cars and we were getting orders for them.

"But it's a funny thing about a man who has enough money to pay for a thing of that kind. He hates worse than fury to put up a little bit extra for something or other. And that little bit was the freight. I think the fact that a twelve hundred dollar car—that was the price we listed our cannon at—cost a century or two for freight scared more than one prospective buyer. And that's how this story came to be. Thereby hangs a tale, I suppose I should say, in true novelist's style.

"We didn't happen to be long of orders just at that particular time and when a man came along who was pleased with everything but the prospect of putting up a matter of fifty or sixty dollars for freight to get the car to him, we didn't like the idea of losing the sale and the old man couldn't see his way clear to throw the freight in. Their terms were f. o. b. factory on everything from a screw up and they were great sticklers for precedent.

"If we do that once we'll have to do it again, and so that was the end of that line of argument. We wanted that order, but we certainly did not want to pay freight.

"'Why not run it to my place under its own power?' innocently suggested the would-be buyer, 'and there will be no trouble at all.' It was about 150 miles, over a very hilly and rather unknown country—nothing at all to a good car nowadays, but considerable of an undertaking then.

"If you recall, cars weren't making any perfect century runs over city boulevards at that time," he hastened to squelch a doubting Thomas who had been telling tales of a several hundred mile run over unknown roads a short time previously.

"Take my word for it, that trip was more of an undertaking than a jaunt from New York to Chicago is now, and I made enough preparations to take us to 'Frisco. Of course, I was commissioned to do the trick for I had risen to the post of chief tester and really thought I knew all about a car.

"Yes, I have learned a thing or two since then, in spite of that opinion.

"A young fellow from the shop was detailed as an aide. You see I was head of the testing department, for I was the whole thing. I staid around the works when breaking in a new car and only went for help when I needed it.

"We got away from the factory early one morning, loaded up with spare tires, batteries and parts, for we were out to get that car through, no matter what happened. Our instructions were simply to get there and not to smash the car in doing it.

"I won't bore you with the details of the trip, gentlemen, because it was tame alongside of some of the tales from the automobile Arabian nights that you have already been treated to. We only made a little over fifty miles the first day because most of the time was taken up in stops and in getting over bad hills that the engine wasn't equal to. And we did not do a great deal better the next day—something like sixty-five miles further along on our trip was as far as we found ourselves the second night. But that didn't worry us any for we had unlimited time in which to make it.

"What kind of repairs took the most time?

"Oh, there were so very many and so many different kinds that I couldn't begin to tell you half of the different jobs we had to do before we got to the second night's stop.

"We had to tinker pretty much everything in the way of adjustments that day and it didn't take us very long to find out that the car was not designed particularly with a view to getting over steep hills. We stalled in the middle of what looked like a cliff and the engine gave out gradually just as if totally unequal to the task. We didn't know any way around—in fact, there was none, so we were in somewhat of a quandary as to how to get over that rise in the scenery. Hills are mighty pretty to look at, but I prefer a side view or even better, one from the top. They are not so entertaining when you have to devise some way of getting a ton and a half of inert metal over them with a nominal twelve horsepower represented by a smooth bore cannon to do it with. And that the cannon had responded to the call to cease firing only made things that much more interesting.

"Toiling at the crank wasn't productive of any result in the shape of action, so we began the usual systematic search; tried the ignition in all its various ramifications and finally got around to the carburetter to the extent of dismantling it and there was the trouble—it was absolutely dry. Not so much as a suspicion of gasolene in it. And a look at the position of the tank and the fuel piping showed the cause. The tank was at the rear and well above the level of the carburetter ordinarily, but on this rise I don't believe there was any gasolene even in the piping. There didn't appear to be any way out of the dilemma except to run backward down the hill and let the carburetter fill of its own accord, but we had already made such a good fraction of the distance that we hated worse than sin to give up what we had gained and so we kept on studying and finally hit on a plan. If we had been encumbered with one of those auxiliary tanks known as surface carburetters I don't know what we would have done, but as it was we had one of the early float-feed varieties and the mug that was placed on them was not of the dainty sort used now; it held considerable in the way of gasolene.

"We fished our drinking cup out of the mass of odds and ends that we carried, wiped it clean—it had been used to fill the oil cups, and drew off some gasolene from the tank. The carburetter was filled with gasolene, after shutting off the cock in the feed pipe so that it held it, and we managed to make the hill on that supply and then merely had to turn on the cock again.

"We made the remaining distance on the third day without any unusual trouble and ran the car into the local garage, so that she could be cleaned up and made to look ship-shape before being turned over to her new owner. A fresh coat of aluminum paint seemed to be about the best thing to hide the traces of service on the engine itself and my chief assistant was down on his back applying it to the under side of the cannon when he yelled as if he had been shot.

"Look in the water-tank," he said. "It was my turn to yell when I got the cap off for there wasn't a drop in it—bone dry expresses its condition best. We hadn't so much as thought of water since leaving the factory. The engine was not overwarm though pretty uncomfortable still to the hand an hour or so after stopping. It was with a foreboding that our trip had been in vain that I went to the crank, but to my relief and astonishment she turned over without any trouble—that is, without any more trouble than it is usually to turn over such a monster one-lunger, and better still, she started easily.

"I got down to see what had startled the crew so much and sure enough, there was a gaping blow-hole in the casting—fully a quarter of an inch in diameter. And it was so badly rusted around the edges that it was easy to see that it was at least three or four days old. We scraped it clean, drilled and tapped it and put a plug in before we turned the car over, and so far as I know that plug is there yet.

"Gentlemen, that was the first long-distance run of a high-powered air-cooled car in this country."

"You win," weakly gasped the one of his audience who had been most persistent in calling for a story. "It's my turn for the waiter, I think."

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The Week's Patents.

825,694. Means for Signalling Automobiles or the Like Vehicles. Emilo Barbarous and Giacomo Barbaroux, Turin, Italy. Filed March 29, 1905. Serial No. 252,786.

Claim.—1. A device of the character herein described, comprising a casing with three openings therein, having communication with the exhaust-pipe of a motor, and a valve for nomally closing one of the openings adapted to be swung to close another of the openings, and to open the one first closed thereby, said valve having one or more channels on the face thereof forthest from the said one of the openings first closed thereby.

825,715. Cover for Pneumatic Tires. Edouard Fortier-Beaulieu, Jeune, Roanne, France. Filed Oct. 11, 1905. Serial No. 282,353.

Claim.—1. A protecting device for a pneumatic tire, having a protecting-mantle of leather with the hairs on, the hair side or face of said leather being disposed outwardly.

825,759. Variable-Speed Driving Mechanism. Richard M. Ruck, London, England. Filed Apr. 9, 1906. Serial No. 310,697.

Claim.—1. The combination with variable-speed driving mechanism consisting of a so-called toothed cone constituted by a series of juxtaposed toothed rings mounted to turn as one about a common axis, successive rings having progressively-varying numbers of teeth of equal pitch and one tooth of all the rings being alined to form a row lying in one plane passing through the common axis of the rings; a shaft journaled to rotate in the same plane with the axis and parallel to the bounding-surface of the cone; and a toother pinion splined upon said shaft and adapted to gear with the several toothed rings of the cone alternately; of means for enabling the pinion to be brought manually into gear with the several toothed rings in succession while the cone and pinion are both rotating; said means consisting essentially of a member actuated in time with the revolutions of the cone and adapted to permit successive movements of the pinion in either direction lengthwise of its axis to an extent equal to the distance apart of successive rings of teeth, only at those moments when a row of alined teeth on the cone is brought into the common plane of the axes of the cone and pinion; and means for applying yielding pressure to the pinion in either direction lengthwise of its axis, substantially as specified.

825,815. Power Transmitting Gear. Schuyler E. Farnham, Racine, Wis., assigner by mesne asignments, to National Mfg. & Mailing Co., Racine, Wis., a corporation of Wisconsin. Filed Oct. 16, 1905. Serial No. 282,929.

Claim.—1. The combination of parallel driving and driven shafts, gears of varying size fast on one of the shafts, corresponding gears loosely mounted on the other shaft each in mesh with a fixed gear and provided with side teeth to constitute a clutch member, other clutch members fast on the shaft for the loosely-mounted gears, a rod adjustable longitudinally of the same shaft within the same, and means in connection with the rod and fixed clutch members for locking these fixed clutch members alternately in engagement with an opposing loosely-mounted gear.

825,821. Wheel. Isaac W. Giles, New Bedford, and Charles W. Tobey, Fairhaven, Mass. Filed Dec. 5, 1905. Serial No. 290,418.

Claim.—1. The improvement in wheels herein described comprising the main wheel-body having a felly and a broad metal tire-plate therein, the rim having a broad metal plate, the inner and outer cushion-block holders secured respectively to the inner and outer rims and having at their outer-edges projecting beads to overlap cushion-blocks and also provided with the projecting lugs, the lugs on one of the holders of each pair extending on opposite sides of the lugs on the co-operating holders whereby to prevent lateral displacement and said holders being recessed between their pairs of lugs to receive the points of the opposing lugs, and the cushion-blocks having the flat ends and provided with the central openings and fitting wherein their holders with the lugs thereof projecting into the central openings of the cushion-blocks, substantially as set forth.

825,830. Vibrating Mechanism for Interrupting currents in Spark-Coils. John O. Heinz, Jr., Lowell, Mass. Filed Sept. 19, 1905. Serial No. 279,073.

Claim.—1. In a spark-coil, a vane or armature; an electromagnet; one or more members of magnetic material independent of the electromagnet, and so arranged in relation to the pole of said electromagnet, that one or more magnets are formed in addition to the electromagnet, and thus serve to attract the vane or armature with a force additional to that of the electromagnet.

825,837. Separator for Secondary Battery Plates. Leonard W. Horton, Providence, R. I., assignor to The Rhode Island Electromobile Company, Providence, R. I., a corporation of Maine. Filed Mar. 17, 1904. Serial No. 198,560.

Claim.—1. A separator for secondary battery plates having internal acid-wells embraced within the bounding surfaces, said separator comprising two parts and arranged face to face, and means for locking said parts together.

825,856. Spark-Plug. David B. Mills, East Orange, N. J., Filed Oct. 4, 1904. Serial No. 227,125.

Claim.—1. In a spark-plug in combination, a socket having a screw-thread and a shoulder, a shank of insulating material having thereon a enlargement adapted to rest on said shoulder and tapering upward from said enlargement and a threaded bushing surrounding said tapered portion and screwing upon said socket to press the bushing against the tapered portion, the bushing where it presses upon said tapered portion being formed of soft metal whereby it is adapted to be upset by said pressing upon said tapered portion, said bushing being of a sufficient length to cause such soft-metal to be upset.

825,867. Combined Intake and Exhaust Valve for Gas-Engines. Anson G. Ronan, Toronto, Canada. Filed Aug. 18, 1904. Serial No. 221,168.

Claim.—1. A combined intake and exhaust valve comprising a casing provided with freely open branch passages which connect together and terminate in a common opening at the valve-seat, the valve and spring keeping said valve closed.

825,923. Gas-Engine Condenser. Louis J. Monahan, Oshkosh, Wis., assignor to Termaat & Monahan Co., Oshkosh, Wis. Filed Oct. 23, 1905. Serial No. 283,947.

Claim.—1. In a condenser or muffler for explosive-engines, a chamber of suitable form to be attached to and supported by an engine-cylinder and having a comparatively large volumetric capacity, an opening thereinto for the entry of exhaust gases, another opening for the exit of the exhaust-gases, a water-passage arranged at the upper end of the condenser and extending downward through the condenser for the passage of water, the downward-extending passage having a suitable number of small holes therethrough and a large opening at the bottom.

826,022. Power-Transmission Gearing. Henry O. Fletcher, Hyde Park, Mass, Filed Mar. 29, 1906. Serial No. 308,640.

Claim.—1. The combination of a main shaft and a counter-shaft, a fixed-gear on one shaft, and a clutch-gear on the other shaft to engage and disengage the fixed gear, of means co-operating with said fixed gear for automatically shifting said clutch-gear forwardly and laterally with relation to its shaft when said clutch-gear first engages said fixed gear.

826,101. Explosive-Engine. William W. Henderson, Washington, D. C., assignor to Industrial Transportation Company, a corporation of the District of Columbia. Filed Oct. 19, 1904. Serial No. 229,120.

Claim.—1. In an explosive-engine, the combination with a working cylinder having a rotary piston therein and a movable abutment, of a compression-cylinder having a valveless communication with the working cylinder, and a piston in the compression-cylinder for compressing the charge against the rotarwy piston and the abutment.

826,448. Universal Joint. Clarence W. Spicer, Plainfield, N. J. Filed Oct. 4, 1905. Serial No. 281,253.

Claim.—1. In a universal joint, the combination of driving and driven members and a trunnion-block, said block provided with projecting journal-pins having bearings in said driving and driven members also provided with bearing-shoulders coacting with integrally-formed portions of the driving and driven members, whereby transmission of load through fastenings to or from said trunnion-block is avoided.

826,461. Vehicle-Tire. Charles E. W. Woodward, Chicopee Falls, Mass., assignor of one-half to Knox Automobile Company, Springfield, Mass., a corporation, and one-half to Olds Motor Works, Detroit, Mich., a corporation. Filed June 29, 1905. Serial No. 267,547.

Claim.—The combination with a wheel-rim, of a tire comprising an elastic core and a casing therefor, the circumference of the core from one side of the rim to the other being greater than the internal circumference of the casing from one border to the other and arranged to be temporarily constructed, by centripetal pressure extraneouely applied before fastening the casing, to effect a lateral bulging of the core, and fastening devices carried upon the wheel-rim and arranged to secure the casing ends in such a manner as to compress the expanded core laterally whereby the core will exert an outward pressure against the casing when the temporary centripetal pressure is removed.

826,477. Speed-Changing Gear. William L. Clouse, Tiffin, Ohio, assignor to The

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National Machinery Company, Tiffin, Ohio. Filed Nov. 16, 1905. Serial No. 278,704.

Claim.—1. In a speed-changing gear, the combination with a case, of a drive-shaft and a driven shaft, the drive-shaft being provided with an elongated drive-gear and the driven shaft having a plurality of drive-gears of different sizes, of a rotatable cylinder embracing the drive-gear and having one open end mounted in a side of the case, a tubular plug fitted in the open end of the cylinder and forming a bearing for the drive-shaft, a sleeve slidably splined upon the cylinder, the sleeve and the cylinder having alined longitudinal slots, and an intermediate gear carried by the sleeve and in constant mesh with the drive-gear through the slots of the sleeve and the cylinder, the sleeve being shiftable upon the cylinder to engage its gear with any of the gears of the driven shaft.

826,116. Safety Gasolene-Measuring Tank. Charles Saunders, Saginaw, Mich. Filed Apr. 3, 1905. Serial No. 253,495.

Claim.—The combination in a tank, with a measuring-receptacle located near the upper end thereof, a pump discharging directly into the receptacle, means for emptying the receptacle, a pipe open at its lower end and depending into the receptacle, the pipe being supported by the tank and inclosing an aperture in the tank, a gauge-rod received in the tank and extending through the aperture in the tank and a flexible valve carried by the rod and normally adapted to close the aperture in the tank.

826,123. Electric Sparking Igniter for Explosive-Engines. Lem A. Smith, Englewood, N. J. Filed Apr. 16, 1904. Serial No. 203,430.

Claim.—1. The combination, with the explosion-inclosure and a piston arranged therein, said inclosure having a recess set apart from the space therein in which the piston plays, of an electric igniting means arranged in said recess, means for admitting fuel into the cylinder, and a baffle-plate arranged between said igniting means and the fuel-admitting means and close to the former, substantially as described.

826,143. Tire Construction. John C. Cole, Chicopee Falls, Mass., assignor to The Fisk Rubber Company, Chicopee Falls, Mass., a corporation. Filed Mar. 16, 1905. Serial No. 250,389.

Claim.—1. The combination of a tire having a flanged base, of a wheel-rim on which said base is seated, clamping-rings to fit over the edges of said base in overlapping relation with the borders of the rim, the outer edges of the latter being beveled from the under side thereof outwardly, together with bolts located transversely of the rim, and means on the bolts to engage the rings and beveled edges of the rim whereby when nuts on the bolts are screwed up, said rings may be drawn toward the rim to secure the base of the tire to the latter.

826,144. Tire-Fastening Device. John C. Cole, Chicopee Falls, Mass., assignor to Fisk Rubber Company, Chicopee Falls, Mass., a corporation. Filed Oct. 26, 1905. Serial No. 284,436.

Claim.—1. A tire construction comprising a rim having an abutment on one side thereof for the base of the tire, there being a circumferentially-disposed channel in said rim in the opposite side thereof; a tire-casing having a flanged base seated on the rim against said abutment, the upper surface of said flanged base being downwardly and outwardly beveled; a ring of greater diameter than the rim to fit over said base on the beveled portion thereof, and a contractible ring located in, and bearing against the outer border of said channel and against said ring, said ring during its contraction being movable inwardly and downwardly relative to the rim.

826,173. Storage-Battery Plate or Electrode. Alfred E. Knight, Somerville, Mass., assignor to James H. Churchill, trustee, Quincy, Mass. Filed Nov. 8, 1905. Serial No. 286,327.

Claim.—1. A battery plate or electrode comprising two members, each having a perforated outside metallic wall or plate and metallic ribs or bars on the inner surface of said wall or plate arranged with the bars in close proximity to each other, and a substantially thin metallic wall or sheet interposed between the said members and making contact with the ribs or bars of both members, and means to secure the said members and sheet together, substantially as described.

826,198. Controlling Mechanism for Motor-Vehicles. Charles O. Snyder, New York, N. Y. Filed July 20, 1905. Serial No. 270,451.

Claim.—1. A controlling system for motor-vehicles comprising a plurality of pedals and means connected to each of the pedals for releasing a plurality of the remaining pedals of the series when it is depressed.

826,213. Apparatus for Vulcanizing Rubber Tires. Nels Ahrbin, New York, N. Y. Filed Sept. 6, 1905. Serial No. 277,193.

Claim.—1. An apparatus of the class described, provided with a stationary and movable jaw member, and means for locking said jaw members together, said jaw members being also provided in their adjacent faces with segmental grooves and means for varying the dimensions of said grooves, comprising separate sets of auxiliary jaws hinged to the opposite ends of the first-named jaw members and adapted to swing into position between the first-named jaw members and to occupy the grooves therein, substantially as shown and described.

826,309. Transmission-Gear. William L. Buck, New York, N. Y. Filed Sept. 2, 1902. Serial No. 276,802.

Claim.—1. In a transmission mechanism, the combination of a laterally-shiftable gear, a second gear having its periphery engaged with the face of the first gear, and an internal bevel-gear engaged with the periphery of the second-named gear.

826,338. Wheel-Tire. John H. Kressler, Bethlehem, Pa. Filed July 19, 1905. Serial No. 270,400.

Claim.—1. A tire comprising a flexible casing, a yielding core approximately filling the casing and a guard-plate between the core and casing arranged to stretch the casing tightly upon the core.

826,365. Gearing for Motor-Vehicles. Charles Schmidt, assignor to the Packard Motor Car Co., Warren, Ohio, a corporation of West Virginia. Filed June 22, 1903. Serial No. 162,631.

Claim.—1. In a motor-vehicle, the combination with a casing, of equalizing-gears mounted in bearings in said casing, axle-sections connected with said equalizing-gears, a pair of bevel-gears for operating the equalizing gears, the gear having a bearing in said casing, and variable-speed gears in said casing for operating the gear at different speeds.

826,382. Self-Locking Steering-Gear for Vehicles. Ernest F. Steck, Chicago, Ill., assignor to The American-La France Fire Engine Company, Elmira, N. Y., a corporation of New York. Filed Aug. 28, 1905. Serial No. 276,074.

Claim.—1. In a device of the character described, the combination of a locking member connected to the guiding-wheels of a vehicle to move therewith, steering mechanism for moving said member to change the direction of the guiding-wheels, a locking device, a series of notches or recesses on said member in which said locking device engages, a cam device operated by the steering mechanism, said cam device engaging the locking device and operating to release and set the same.

826,405. Elastic Tire. Arthur T. Collier, St. Albans, England, assignor to The Reilloc Tire Company, Limited, London, England, a corporation of Great Britain. Filed Sept. 7, 1905. Serial No. 277,435.

Claim.—1. An elastic tire for vehicle-wheels, comprising a substantially cylindrical support, a series of lengths of elastic material, rigid carriers secured to the bases of said lengths of elastic material, projections on said rigid carriers, and separate lateral flanges on said support for engaging with said projections.



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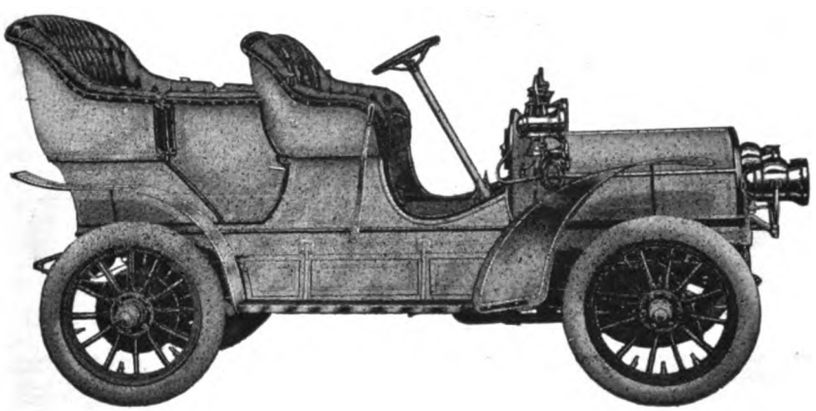
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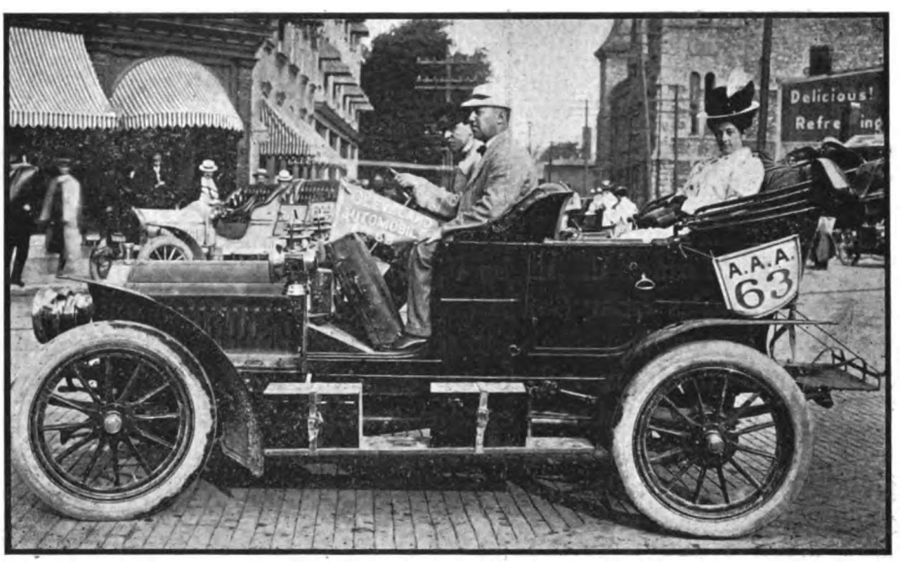
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Radiator Talks

BY FRANK BRISCOE

No. 2. Radiator Efficiency.

Radiator efficiency depends on (1) Amount or direct and indirect surface, (2) Material used for each, (3) Shape and location of each, (4) Nature of surface, (5) Connection between the direct and indirect surface, (6) Cross section of conducting elements in proportion to radiating surface, (7) Amount of water passing through in a given time, (8) Speed of air, (9) Relative temperatures of air and water.

No. 9 does not concern the radiator. No. 8 concerns the fan only.

Considering Nos. 1, 2, and 6 together reminds us of the general believed fallacy that surface only is to be considered. On a honeycomb or finless tube type, this is practically true; but in a finned-tube cooler the fins must be thick enough, that is have enough cross section of conductivity to carry to the surface such amount of heat as the surface is capable of dispersing.

Where high conductivity is needed, copper must be used. Where the conductivity is greater than the convection capacity, brass or other material will do, copper not being high in either radiation or convection. No. 4. The surface may be increased in convection capacity by various treatment as roughening, perforating and coating.

No. 5. The connection between the tube and the fin must be metallic, not friction. There is about 30% difference between the two kinds. New methods of soldering have been devised to meet these requirements.

All the above points are problems worked out by us as manufacturers of radiators except 3, 7 and 8, which also concern the designer of the car. No. 3. Radiators are generally placed in front. When elsewhere the greatest possible vertical front exposure should be given. Make them tall and thin, not short and thick. More than three tubes deep decreases rapidly in efficiency. No. 8 is affected on low speed by fan size and gearing.

No. 7 is very important and often neglected. The more water goes through, the hotter the radiator is kept, consequently the more heat is given off. Use big connections. Don't throttle the cooler. For No. 1 flat tube, connections should be at least 7/8" inside, for honeycomb 1" or more.

No rule will give the radiator required for any given motor. Let us have full data on the motor, and we can generally make a close guess. No one but a fool will claim more. Then let us loan you a sectional testing radiator. Add to or take from it until you are satisfied; then we can make up a sample radiator of equivalent efficiency of any type.

We are now ready to make samples. Catalog on request.

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Notice to Manufacturers of Commercial Motor Cars.

Proposals are hereby invited by the City of Hartford for the manufacture of a Police Patrol Wagon for the use of the city, the car to be of the gasolene type with a four-cylinder motor located in front under a hood and to develop from 40 to 50 H. P. To have a sliding gear transmission with at least three speeds forward and reverse, and to have double chain drive.

Wheels to be at least 34 inches in diameter, fitted with five-inch Swinehart solid tires, and both front and rear axles to be of chrome nickel steel.

The wheel gauge to be 56 inches and the wheel base to be of sufficient length to have an enclosed body measuring 7 feet and 8 inches back of the driver's seat, with seats running lengthwise on each side of the body.

The car is to be geared so as to run from 8 to 30 miles an hour on the high gear and all bids to include painting, upholstering and full lamp, horn and tool equipment.

Manufacturers are requested to submit specifications for a car embracing the above features and such others as they may deem suitable together with a drawing of the car proposed to be furnished and the price for which they will furnish the car which they specify.

Manufacturers will also state the time within which they can deliver the proposed car, prices to be f. o. b. Hartford.

All bids and proposals must be placed in securely sealed envelopes and addressed to the Board of Contract and Supply, City of Hartford, care of the Mayor's office, Hartford, Conn., and said bids and proposals will be received until 3 p. m. on Monday, August 6, at which time bids will be opened.

All bids and proposals must be accompanied by a certified check in the amount of 10 per cent. of the face of bids as guarantee of good faith, and the successful bidder must execute surety bond in 50 per cent. of the contract price as security for the faithful performance of the contract.

The Board of Contract and Supply reserves the right to reject any and all bids.

BOARD OF CONTRACT AND SUPPLY,
James P. Berry, Secretary, Pro tem.
Hartford, Conn., July 24, 1906.



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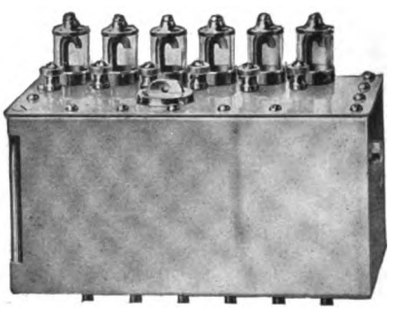
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Gentlemen—In reply to yours of recent date referring to the Premier automobile, we are pleased to advise that it is giving perfect satisfaction and I have not had to change an adjustment. I have given it a thorough test.

I took five people out to the Turpentine Still, twenty miles, and the last five miles of the road the ruts were from 6 inches to 12 inches deep, and I did not have to shift the gear a single time on account of the sand.

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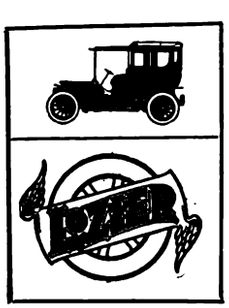
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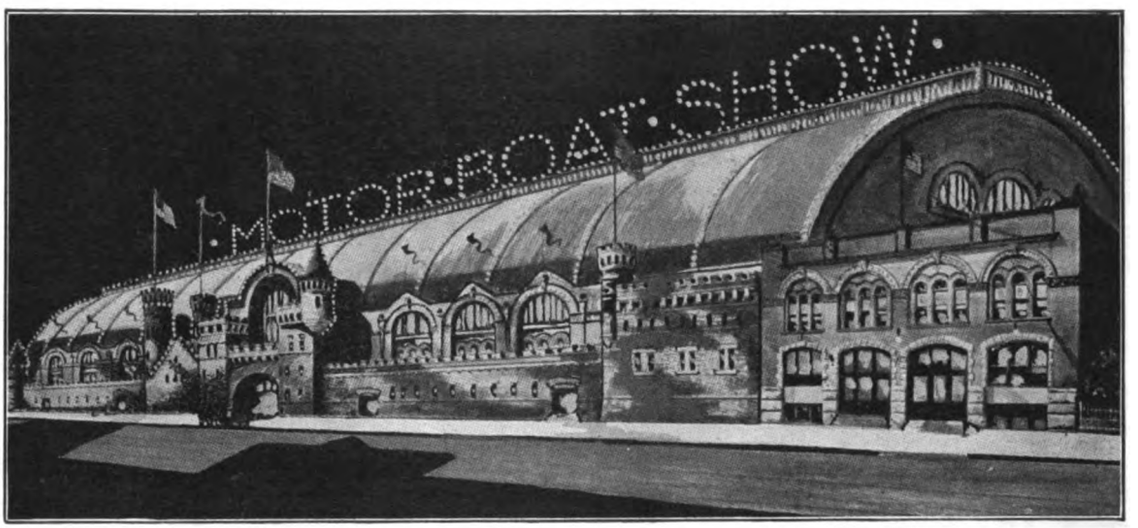
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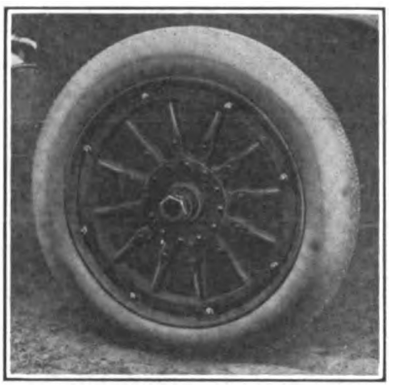
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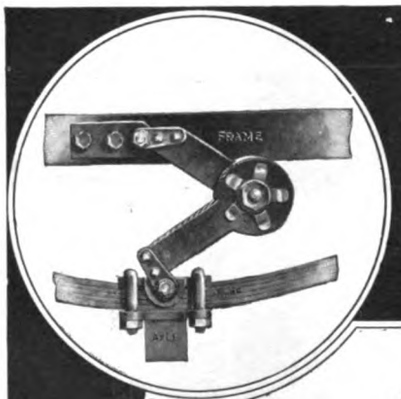
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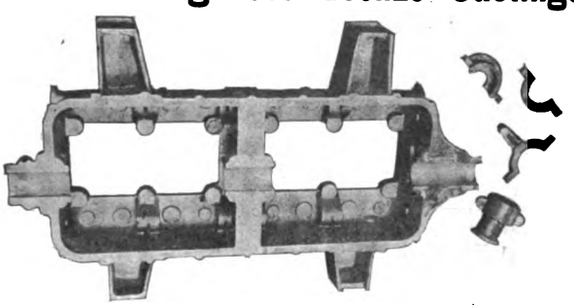


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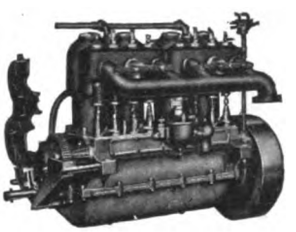
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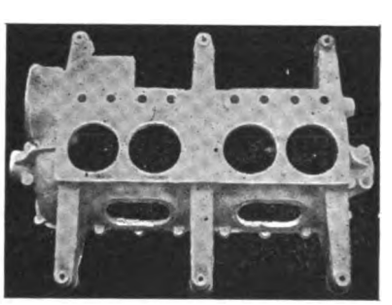


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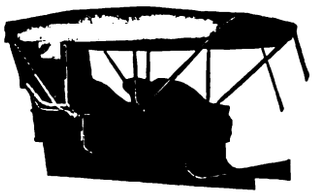


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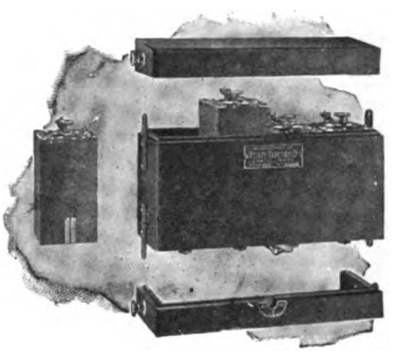
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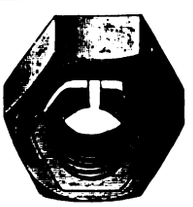
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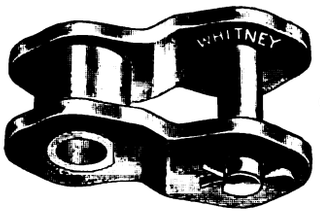
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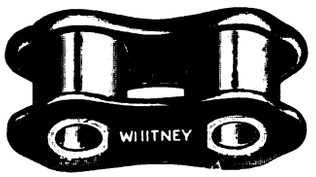
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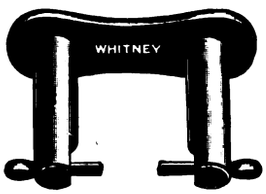
Connecting Link



OFFSET LINK



Assembled Center Block

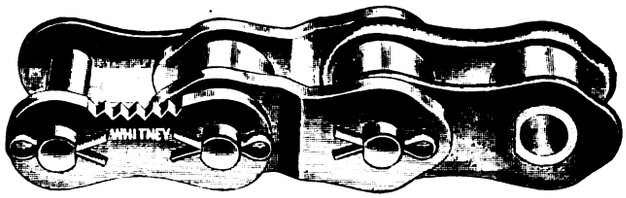


Side Link with Rivets Assembled



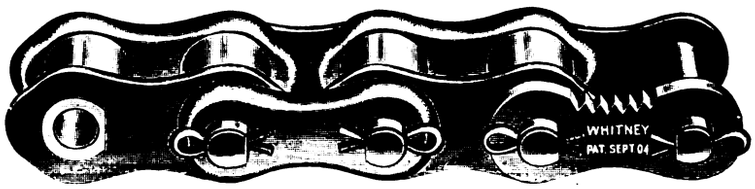
Side Link Plain

"Whitney" Offset Links for use when it is required to shorten or lengthen a chain only one Link.

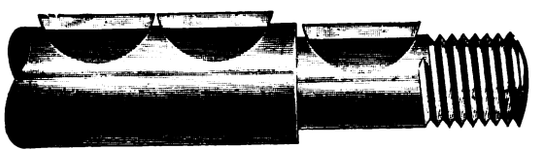


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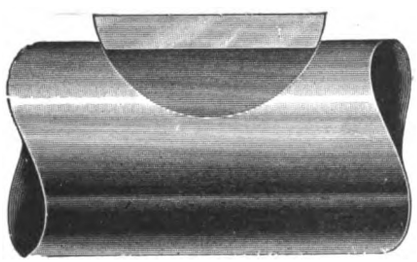
"ADAMS-FARWELL" "ADAMS VEHICLE CO." "AMERICAN MOTOR TRUCK" "AUTO-CAR EQUIPMENT" "BAKER" "BERKSHIRE" "BIDDLE-MURRAY" "CADILLAC" "COLUMBIA" "CHAMPION (McCrea)" "CROWN" "CRAWFORD" "COLUMBUS BUGGY CO." "ELWELL-PARKER" "FORD" "FRANKLIN" "GAETH" "GALE" "GROUT" "HEWITT" "THE HOLMES" "IROQUOIS IRON WORKS" "KNOX" "LAMBERT" "LEAR" "MATHESON" "MACK BROTHERS" "MITCHELL" "MOLINE" "NEW YORK MOTOR TRUCK" "OLDS" "PACKARD" "RAMBLER" "RAPID" "REO" "SIMPLICITY" "STEARNS" "THOMAS" "TOURIST" "WAYNE" "WESTERN MOTOR TRUCK" etc.

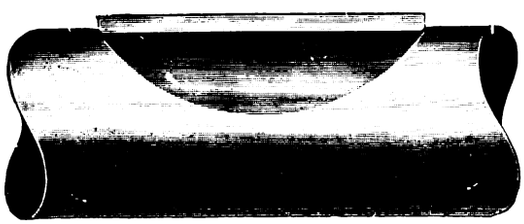


Detachable Type Patented









The Woodruff Patent System of Keying has been adopted by the Leading Manufacturers of Motor Cars, Machinery, etc. It is more mechanical, more efficient and also a great labor saving invention.

We carry over 50 sizes of KEYS and CUTTERS in stock for immediate delivery.

THE WHITNEY MFG. CO.,

Hartford, Conn.

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There's But Little Expense for Tire-Maintenance

when you buy tires that are as strong as they **ought** to be. Tires that **give** out are mightily expensive, beside being a first-class nuisance. Tires that **wear** out give you the same satisfaction that you get from a **good** suit of clothes. Don't stand for **"give-out"** expense; use

Every tire a *good* tire. We have no special tires for special uses. You can be sure of the quality of the tire *you* buy.

You may never have occasion to use the reserve strength that is put into these tires (we hope you won't) *but it's there if you do.*

MORGAN & WRIGHT TIRES

Rims branded in the channel with this copyrighted mark have been inspected and pronounced pertect We guarantee our tires only on rims so branded.

CLINCHER——DUNLOP
BAILEY "WON'T SLIP" TREAD

MORGAN & WRIGHT, CHICAGO

NEW YORK BOSTON CLEVELAND DETROIT ATLANTA KANSAS CITY LOS ANGELES PORTLAND
SYRACUSE PHILADELPHIA DAYTON MINNEAPOLIS ST. LOUIS DENVER SAN FRANCISCO

Constant Power Makes for Smoothness

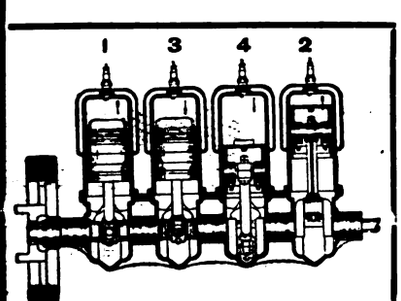
Through the use of the two-cycle principle, a feature that has made the Elmore unique among high-class automobiles, this car has a greater number of impulses per revolution of its main shaft than are possible with any four-cycle touring car in use to-day.

It would require eight four-cycle cylinders, with sixteen valves and nearly two hundred minor parts to equal the four impulses that take place with every revolution of the four-cylinder two-cycle main shaft.

And the Elmore performs its splendid work without the use of valves. There are no small parts on its cylinder. The explosive mixture and the burnt gases enter and leave its cylinders through ports which are uncovered and covered by the action of the pistons—a purely automatic proceeding which never fails to give precisely the desired results.

All this, you see, makes not only for greater smoothness because it produces virtually constant torque, but it gives the operator immunity from petty valve worries.

You should know all about this famous car. Ask to-day for complete Elmore literature.



Write to-day for complete information.

Model 15, Four Cylinder, Two-cycle Elmore, $2,500.

THE ELMORE MANUFACTURING COMPANY,

1104 Amanda Street, CLYDE, OHIO.

Member Association of Licensed Automobile Manufacturers.

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TO SELLERS AND USERS

OF

CLINCHER TIRES

We have commenced and are vigorously prosecuting suits for infringement of our patents against the Pennsylvania Rubber Company and the Michelin Tire American Agency, Inc., on account of the sale of Clincher tires.

The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J Patents:

G & J Tire Co.
Hartford Rubber Works Co.
Morgan & Wright.
B. F. Goodrich Co.
Diamond Rubber Co.
Goodyear Tire & Rubber Co.
Fisk Rubber Co.
International Automobile & Vehicle Tire Co.
Continental Caoutchouc Co.

G & J TIRE CO.

Indianapolis, Ind.

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Columbia Supremacy

July 28th, COLUMBIA MARK XLVI., 24-28 H. P., Price $3 000 finished the **GLIDDEN TOUR** with a **PERFECT SCORE** and in **PERFECT CONDITION.**

July 31st, same car, without any repairing or adjusting won its class event in the **CRAWFORD NOTCH HILL CLIMB.**

From the start at Buffalo to the finish of the climb not a repair or replacement had been made except for tires, demonstrating again the superiority of the **Columbia** design, material and construction.

These performances with previous successes at Readville, Dead Horse Hill, Paterson, Washington, Chicago and the Elgin-Aurora Reliability Run, absolutely prove **COLUMBIAS** to be the best cars of the season.

Immediate delivery of above model, also of 40-45 H. P., Price $4,500 and 18 H. P., Price $1,750

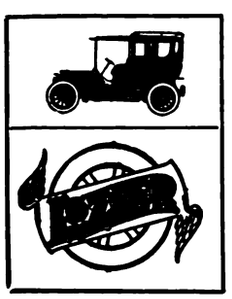
Mailed on request; and also special illustrated pamphlets, "Fashioning A Crankshaft," "Columbia Chrome-nickel Steel," "Transmission, Etc.," "Consistent Differences."

ELECTRIC VEHICLE COMPANY, Hartford, Conn.

NEW YORK BRANCH—134-136-138 West 39th St. CHICAGO BRANCH—1332-1334 Michigan Ave.
BOSTON—Columbia Motor Vehicle Co., Trinity Place and Stanhope St. PHILADELPHIA—Pennsylvania Electric Vehicle Co., 250 N. Broad St.
WASHINGTON—Washington E. V. Transportation Co., 15th & Ohio Ave.
Members Association of Licensed Automobile Manufacturers.



BEFORE THE FALL



of the year—through Winter—and into the late Spring and early Summer—*and* for occasional rainy days and uncertain weather during *any* season of the year, the **LIMOUSINE** or other enclosed type of Motor Car, is a necessity to those who travel right. The New **LOZIER** Models for 1906–07 are constructed along most beautiful lines, and we cordially invite inspection for our designs, orders from which are now booking for *early* Fall delivery. Place your orders now—time is precious.

THE LOZIER MOTOR COMPANY

55TH STREET AND BROADWAY (*Member A. L. A. M.*) NEW YORK CITY

Agents: Myronda Motor Car Company. St. Louis — Geyler & Levy Chicago — Martin & Hart, Philadelphia — Harry Fosdick Co., Boston

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Did You Ever Notice

that aside from the big number of cars showing a full Goodrich tire equipment, how many cars have one, two or three Goodrich tires? It usually means a one at a time change over to

Goodrich Quick Detachables

The reason is obvious.

THE B. F. GOODRICH COMPANY, - - - Akron, Ohio

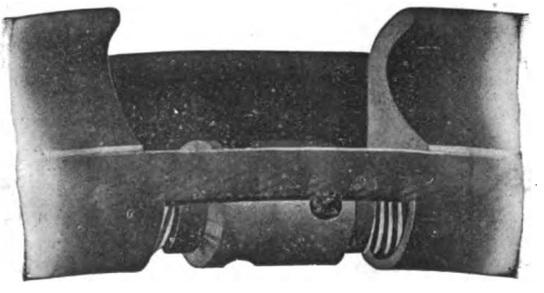
Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

NEW YORK—66-68 Reade St. & 1625 Broadway. OAKLAND, CALIF.—Fourth & Washington Sts.
CHICAGO—24 E. Lake St. CLEVELAND—2188 9th St., S. E.
BOSTON—161 Columbus Ave. PHILADELPHIA—909 Arch St.
BUFFALO—731 Main St. DETROIT—80 E. Congress St.
DENVER—1444 Curtis St. ST. LOUIS—3926-28 Olive St.
LONDON, E. C., 7 Snow Hill.

Pioneer Steel Wheel and Universal Rim Manufacturers of the World

Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

Sole Makers of the HARTFORD UNIVERSAL RIM for DUNLOP AND CLINCHER TIRES



MIDGLEY MANUFACTURING COMPANY, - - Columbus, Ohio.

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Contestants in Class III.

Price	Name	Time
$1800	Mitchell	0:43¼
$2250	Olds	0:43¾
$2500	Ford	0:44¾
$2500	Ford	0:45½
$2800	Franklin	0:51¾
$2500	Rambler	0:53¼
$2000	Queen	0:53½
$2250	Olds	0:53¾
$3000	National	0:54
$3000	Frayer-Miller	0:54¼
$1800	Franklin	0:59½
$3000	Marmon	0:59¾

Besting also the following in Class IV.

$4000	Thomas	0:45
$3500	Royal	0:46
$3500	Thomas	0:59½

And the following in Class V.

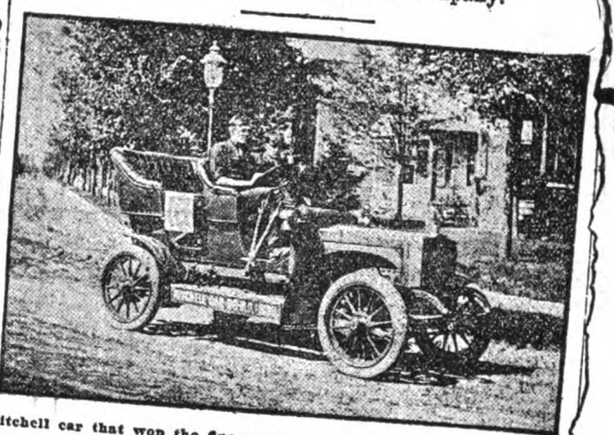
$3500	Royal	0:47

Wherever the Mitchell Tries, It Wins

THE MINNEAPOLIS

Mitchell Automobile Won Prize Cup for Hill Climbing

It Is a Handsome Affair, Donated by Leopold Metzger of S. Jacobs & Co.—Now on Exhibition at Garage of Auto Construction Company.



Mitchell car that won the fine cup made by Jacobs, in the recent auto hill climbing contest.

The 30-horse power Mitchell automobile created an enviable record for itself when it crossed the tape in the hill climbing contest at the Riverside hill driveway in 43½ seconds, thus winning the finest valuable motoring trophy ever offered in an automobile contest in the Northwest.

The course is 2,000 feet in length, and has a rise of 76 feet. It contains one hard turn and presents several minor inequalities, but the roadbed on the day of the contest was firm and dry, offering the drivers an excellent opportunity to demonstrate the worth of their respective machines.

With the exception of the class in which the stripped and freak cars were allowed to enter, the chief interest was undoubtedly centered in Class 3, as it was in this class that the higher priced and popular cars were running. Considerable rivalry had been existing among most of the dealers and owners, and, as had been predicted, the finishes were close and exciting, with the Mitchell winning out by the mere fraction of a second.

It sailed up the incline in a beautiful manner, with the driver and his assistant leaning far forward in order to afford the least resistance to the wind. Their run was the best of the day, with the probable exception of that made by the little steamer which set a new record for the hill.

The $1,800 car made unusually good showing in competition with its $2,500 and $3,000 rivals.

Considerable credit for the excellent record made by the Mitchell must be given to the daring and skillful manipulation of the levers and wheel, for had not the driver been perfectly cool and well able to handle his car, disastrous results might have been expected. Earnest Simpson, who brought the car successfully over the line a week ago Saturday, has plenty of nerve as well as skill, and will drive the Mitchell in all future speed contests.

C. C. Evans, of the Auto Construction Co., the owner of the machine in question, is now exhibiting to his friends the handsome trophy which he won in the hill climb. It is without doubt one of the most beautiful cups ever offered for any automobile race in the Northwest.

It was donated by Leopold Metzger of S. Jacobs & Co., jewelers, 518 Nicollet avenue. Resting on a pure ebony base, it stands two feet high, is made of solid sterling silver, and is lined with a thin covering of gold. It is adorned with a miniature automobile at the top, while a decidedly effective finish is given by three large handles each with a mercury wheel at its base. It is on exhibition at the Auto Construction Co.'s Garage, 1401 Hennepin avenue.

WE HAVE been so busy trying to get out cars enough to fill our orders that we have not had time to engage in the races, hill-climbing contests, etc., which are continually being pulled off.

It is a peculiar and very significant fact, however, that whenever the MITCHELL has tried it has WON, beating out cars at often DOUBLE the price.

What will happen if we ever have time enough to follow the lead of others, make up special cars and "go after" these records instead of picking them up incidentally here and there with stock cars is a matter of conjecture.

Our customers say that no matter what test is given the Mitchell, it has a most gratifying habit of "making good."

Our handsome Art Catalogue (price 10c) will tell you about the Touring Car at $1800 which has made dozens in the $3000 to $5000 class look foolish. Write for it.

Mitchell Motor Car Co.

104 Mitchell Street, Racine, Wis.

Member American Motor Car Manufacturers' Association, New York

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THE MARMON

"A Mechanical Masterpiece"



Perfect Score in the Glidden Tour

¶ The 30 H. P. Marmon, driven by F. E. Wing, of Boston, finished the run of 1,200 miles from Buffalo to Bretton Woods not only by a clean score, but with a clean conscience.

¶ It was not rebuilt on the road. It had no repairs and no replacements. It arrived at Bretton Woods in absolutely perfect condition, not even a tire having been worn out on the trip. The Marmon demonstrated once for all on this difficult tour that its air cooling is not only more convenient but more efficient than any system of water cooling during the long climbs through the Adirondacks and the White Mountains, when most of the water coolers boiled over not once did the Marmon motor overheat.

¶ The whole car used less than five gallons of lubricating oil for the entire trip.

¶ The Marmon didn't stall on the hills, no matter how steep, sandy or muddy. It didn't break springs, it didn't jolt the life out of its passengers.

¶ It did show in every phase of the most exacting contest ever held the result of skilful designing, and the highest possible grade of materials and workmanship.

¶ The Marmon is built entirely by

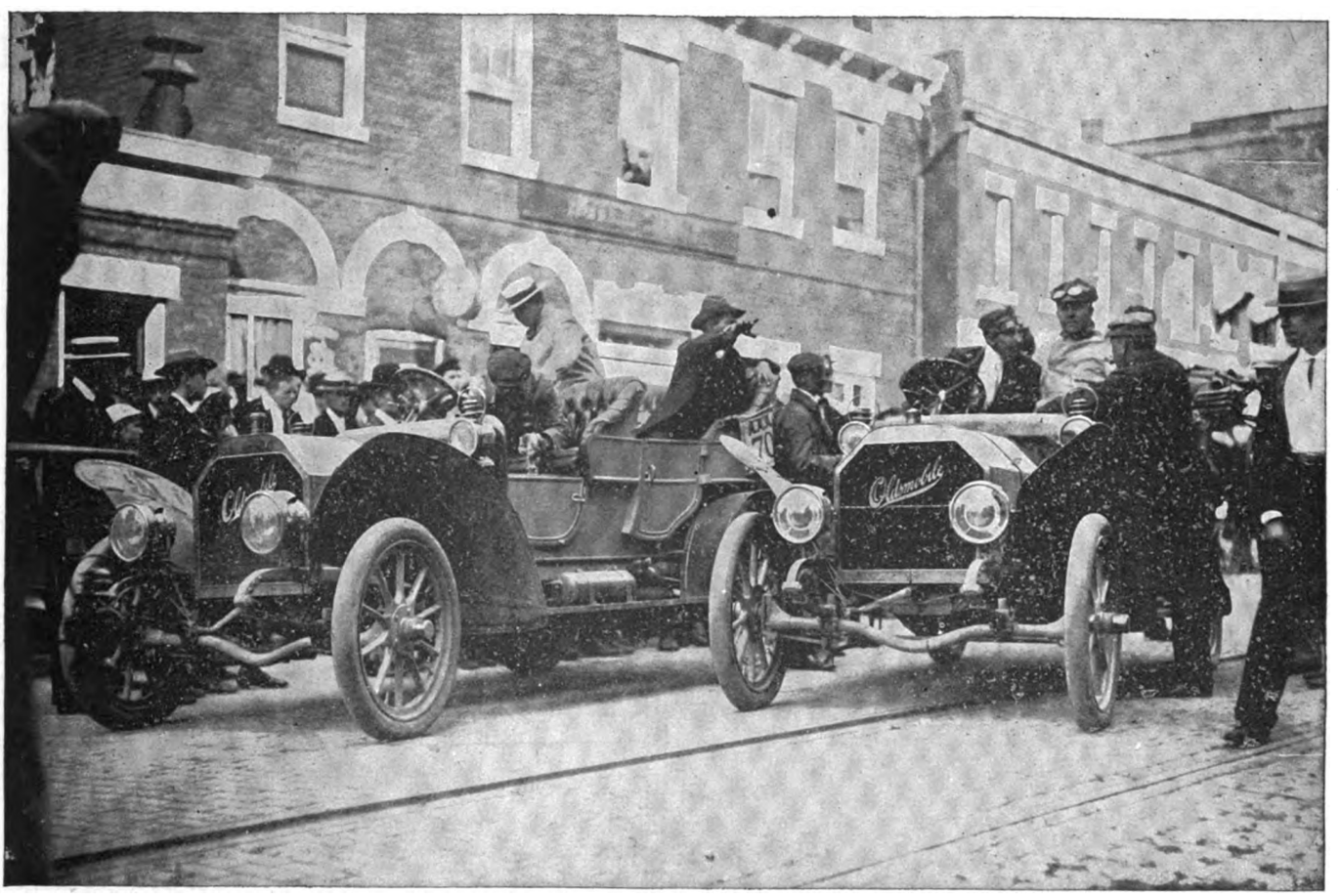
NORDYKE & MARMON CO., Indianapolis, Ind.

(Established 1851)

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YOU DRIVE A WINNER WHEN YOU DRIVE AN

OLDSMOBILE



Not content with being a winner of the Glidden Tour, Ernest Keeler drive his Oldsmobile 28-30 h. p. Palace Touring Car on a non-stop run from Bretton Woods to New York City in the record time of 505 miles in 21 hours and 30 minutes. Of this event the New York Globe of July 31st says:

"One of the most notable non-stop runs in the history of automobiling was completed in New York yesterday afternoon when Ernest Keeler arrived after a 505-mile run from Bretton Woods. Keeler drove the same 28-30 horsepower Oldsmobile touring car with which he made a perfect score in the very severe Glidden trophy contest.

"The most remarkable feature of this non-stop run was that the car, which averaged 24 miles an hour for the entire 505 miles, over rough roads, through heavy rains and deep mud, without having its motor stop once, did not receive a single adjustment, repair, or tire change between the time it finished the Glidden contest and the time it started on its non-stop run.

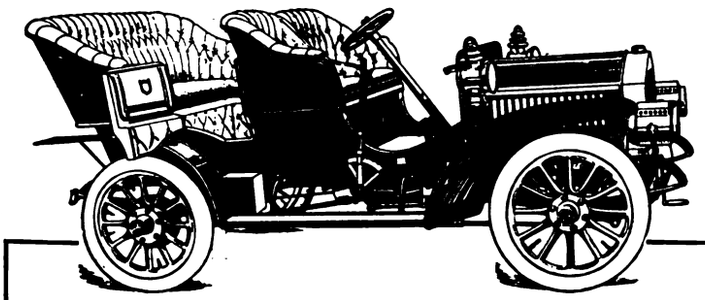
"Ernest Keeler left Bretton Woods, in the White Mountains, at 12:10 P. M. Sunday and arrived at the headquarters of the New York Motor Club, Broadway and Fifty-fourth street, at 2:28 o'clock the following afternoon. The total elapsed time was 26 hours and 18 minutes, and the actual running time 21 hours and 30 minutes. Keeler drove every inch of the way himself, a notable achievement in the annals of driving."

OLDS MOTOR WORKS, Lansing, Mich., U. S. A.

Members Association of Licensed Automobile Manufacturers.

Canadian trade supplied from Canadian Factory, PACKARD ELECTRIC CO., Ltd., St. Catharines, Ont.

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PERFECT SCORE
IN THE
GLIDDEN TOUR

¶ The **POPE-HARTFORD** was the lowest-powered car to finish with a perfect record the contest for the Glidden trophy, the severest test ever held in this or any other country. No adjustments or repairs were permitted except within actual running time, this precluded the possibility of making anything but minor repairs and adjustments without penalization for lost time.

¶ This is particularly significant because, out of the 63 cars entered, only 20 per cent. finished without losing points. Moreover, the **POPE-HARTFORD, immediately upon being released was driven from Bretton Woods to Hartford, Conn., a distance of 346 miles, and its motor and working parts are in as good condition to-day as when the car started.** This continuous run of over 1,500 miles is another forceful demonstration of the dependability of these machines.

POPE-HARTFORD
Model G, 2-Cylinder, 18 H. P., $1,600.00
(With Top $100.00 Extra)

POPE-TRIBUNE
2-Cylinder, 14 H. P., $900.00

Pope Manufacturing Co.
HARTFORD, CONN.

NEW YORK, 1733 Broadway BOSTON, 223 Columbus Ave
WASHINGTON, 819 14th Street, N. W.

Members Association of Licensed Automobile Manufacturers.

POPE AUTOMOBILES

Locomobile

Wins Endurance Run of the Albany, N. Y., Automobile Club

Joseph B. Taylor, driving his 30-35 H.P. "Locomobile," won the silver cup donated by Col. A. J. McClure. Over 540 miles through New England without a stop or adjustment.

Also W. L. L. Peltz, driving a 30-35 H.P. "Locomobile," secured honorable mention. 19 competing cars. Two of them "Locomobiles."

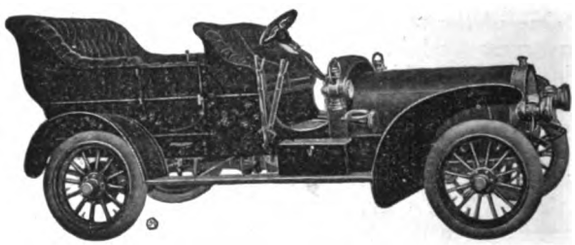
Send for "Locomobile" Catalogue.

The *Locomobile* Co. of America
BRIDGEPORT, CONN.

Members Association Licensed Automobile Manufacturers.

National

WORLD'S RECORDS
FOR
1000 Miles and 1094 3/16 Miles in 24 Hours
Made Nov. 17th, 1905
STILL STANDS UNEQUALLED.



4 Cyl. 35-40 H. P. $3000. 6 Cyl. 50-60 H. P. $4000.

NATIONAL RELIABILITY AND ENDURANCE ARE HARD TO BEAT.

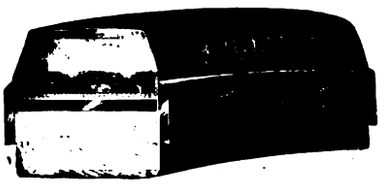
Write for Particulars.

National Motor Vehicle Co.
1007 E. 22d STREET,
Indianapolis, Ind.

• Member American Motor Car Manufacturers' Association, N. Y. •

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THE MODERN TIRE



Made successfully to overcome the numerous weaknesses of the ordinary offerings

Diamond

Wire Mesh Base Construction

FOR MOTOR TRUCKS AND COMMERCIAL CARS

NO EXPERIMENT: Tested and approved by Motor Truck Builders of national reputation.

BROAD AND LOW: Which means enormous traction and the **Right ground grip.** Eliminates leverage for side strains and distributes shocks and wear over a large, tough surface.

ECONOMICAL: Delivers the distance at low cost per ton-mile.

SCIENTIFIC - CORRECT

Made of best rubber, by skilled workmen—to wear.

Our proposition will interest you.

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

NEW YORK—78 Reade St.
NEW YORK—1717 Broadway.
BOSTON—174 Columbus Ave.
PHILADELPHIA—304-306 N. Broad St.
BUFFALO—715 Main St.
DETROIT—258 Jefferson Ave.
ST. LOUIS—3966 Olive St.
CHICAGO—1523-31 Michigan Ave.
CLEVELAND—1514 Euclid Ave.
SAN FRANCISCO—
MINNEAPOLIS—503 Second Ave., S.
DENVER—1735 Arapahoe St.



The GOODYEAR

Detachable

AUTO-TIRE

ON

Universal Rim

is so durable yet so lively—so difficult to puncture yet so easy to Repair—that it really

Cuts out Tire Troubles

Call and see a demonstration at any of the following branches—it will convince you.

Boston, 261 Dartmouth St.
New York, cor. Sixty-fourth St. and Broadway.
Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
Buffalo, 719 Main St.
Denver, 220 Sixteenth St.
Detroit, 242 Jefferson Ave.

The Goodyear Tire and Rubber Co., Grove St., Akron, O.

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HAYNES Master Clutch



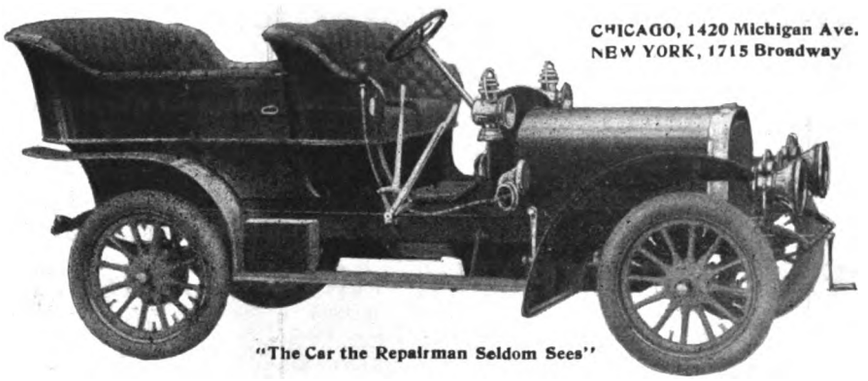
In the HAYNES Master Clutch a cam controlled by a foot lever constricts a band which is keyed to the transmission shaft, on the face of a 10¼-inch pulley, the four forked arms of which extend to the inner rim of the fly wheel, on which are cast four lugs, one resting between each fork. Very stiff coil springs are fitted one on each side between the lugs and the forks. The stiff coil springs effectually cushion the transmission, driving mechanism and all keys from the shocks and racking effect caused by the sudden application of high power, and greatly prolong the life of the entire machine. The operator can "pick up" the car without a jar or tremor, a sudden jerk, as is common with the cone and several other types of clutches, being impossible.

The HAYNES is the highest-powered shaft-driven car built. In requesting catalogue for prompt attention, address Desk D 26.

HAYNES AUTOMOBILE CO., Kokomo, Ind.

Members A. L. A. M.

CHICAGO, 1420 Michigan Ave.
NEW YORK, 1715 Broadway



"The Car the Repairman Seldom Sees"

MODEL "R" FOUR-CYLINDER TOURING CAR. Vertical roller-bearing engines. Cylinders cast separately, 5⅛x6 inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller bearings throughout. 108-inch wheel base. 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,700 pounds. Price, $3,500, f. o. b. Kokomo. Full equipment.

MODEL "O" FOUR-CYLINDER TOURING CAR. Cylinders cast in pairs 4¼x5 in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,500, f. o. b. Kokomo. Full equipment.

POWER

At this stage of automobile development, the power transmission by chain is most popular.
Properly cut sprockets, and the best and strongest chain in the world.

THE BRAMPTON



Which is made of self-hardening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

The matter of repairs and replacements is simple.

YOUR CHOICE.

The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars. **Special chains to fit Indian motorcycle.**

CHAS. E. MILLER, MANUFACTURER, JOBBER, EXPORTER AND IMPORTER,
HOME OFFICE: 97-99-101 READE ST., NEW YORK CITY.

BRANCHES: New York City—924 Eighth Ave.
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An Ounce of Prevention Is Worth a Pound of Cure

To prevent tire troubles equip your motor car with

G & J Oval Raised Tread Tires

and ride in

SAFETY AND COMFORT

We shall be pleased to furnish you some interesting information regarding the strength, durability and good service of these tires.



Rims branded in the channel with this. copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

G & J TIRE CO.
Indianapolis.

Depots:

Chicago **Boston** **Cleveland**
Detroit **Buffalo** **Denver**
Philadelphia
San Francisco, 411-413 Golden Gate Avenue
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Distributing Agencies:

Minneapolis, Plant Bros.
Portland, Ore., Keats & Co.
Los Angeles
Ramsay-Hutchins Rubber Co.,



The speed of the auto depends to a large extent on the "spark". Sparks produced by the Apple Ignition System get every ounce of power possible out of your motor.

The motorist who wants lots of power and speed from his engine should look carefully into the matter of ignition.

All authorities agree that storage battery current produces the "fattest" and hottest sparks—the kind that ignites the whole charge at one instant.

But storage battery current, to be at its best, should be drawn from an inexhaustible supply—as furnished by the Apple Ignition System.

"Floating the battery on the line" is the term used in describing the Apple System.

It consists of the Apple Storage Battery, which is being constantly charged by the Apple Battery Charger, as fast as the Battery gives off current. It provides ample available current for the starting spark, electric lights, electric horns, annunciator bells, etc.

The Apple Battery Charger is a complete dynamo, built and designed as well as any dynamo made, irrespective of size or use for which intended. It is run by the fly-wheel of the engine, and provides a source of current that will not fail you.

It is entirely enclosed, and cannot be affected by dust, dirt, oil or water. It can be easily installed on any automobile or boat.

When you write state whether your engine is "make and break" or "jump spark."

The Dayton Electrical Mfg. Co.,

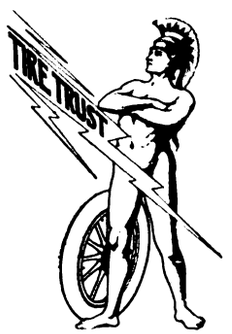
91 St. Clair Street, DAYTON, OHIO.



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5,000 MILES' GUARANTEE WITH

AJAX TIRES



The Ajax Tire and Tire Insurance

How much does tire trouble cost *YOU?*

It's a good, substantial item, isn't it?

More than you ever expected when you bought your first set of tires.

The tire trust hasn't been surprised at your "hard luck." *THEY* didn't expect your tire to wear, because it wasn't *"MADE TO WEAR."* "Poor tires mean poor sales, and more sales more profits." That was the motto of the tire trust.

Guarantee? Certainly not. Tires are a gamble, and the tire trust didn't believe in gambling (especially on the quality of its own product). That's the way tires *HAVE* been sold. To-day it's different.

When the Ajax Standard Rubber Company, formed by members of the American Association of Motor Car Manufacturers, "busted" the tire trust, the way was opened for a "square deal" to the buyers of automobile tires.

The Ajax tire, being made for the *BENEFIT* of the automobile *MANUFACTURERS* who stand behind it, is made *TO WEAR*. So sure are its makers that it *WILL WEAR* that they have done what no other tire manufacturer has ever *DARED* to do—*GUARANTEED IT*.

Every Ajax tire carries with it a registered certificate, which absolutely guarantees the buyer for at least 5,000 miles of riding.

Do your tires carry with them any such *INSURANCE POLICY?*

Do they need it?

We want to get in touch with every automobile owner in this country. We want to tell him all about the Ajax tire, and we want to send him a copy of our guarantee, so that he may study it and judge for himself; and lastly, we want to tell him the location of our agent in his vicinity where he can see the tires themselves.

If you have a tire problem to worry about, write us to-day

Ajax Standard Rubber Co.

DEPT. A

FACTORY AND GENERAL OFFICES:

420-430 East 106th Street, New York

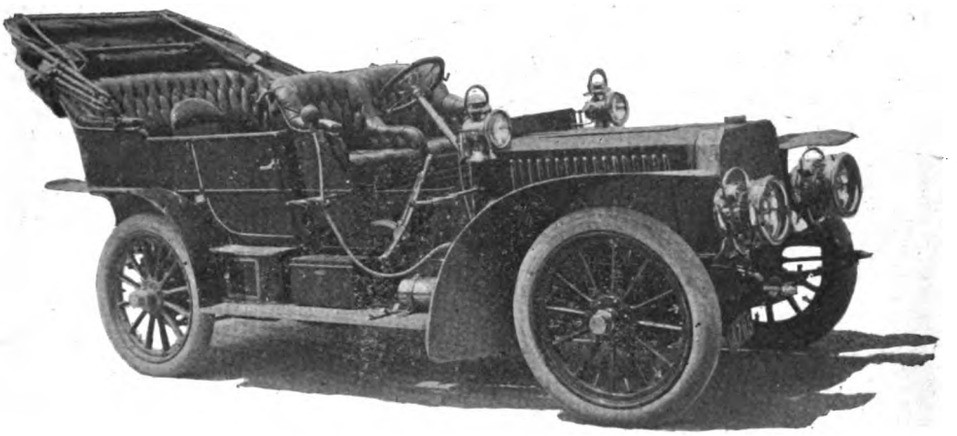
NOTE: The Maxwell car that won the Deming Trophy in the recent Glidden tour was fitted with Ajax Tires

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Matheson Touring Cars

LICENSED UNDER SELDEN PATENT

The value of this high-grade American product depends SOLELY upon its quality and workmanship. The latest practical improvements embodied in its construction gives THE MATHESON a superiority which is widely recognized.



IMPORTANT FEATURES

Motor—Four-cylinder vertical, water-cooled. Transmission—Sliding gear, all of chrome nickel steel.
Ignition—Make-and-Break, which eliminates the use of spark plugs and vibrating coils. Speed—60 miles an hour guaranteed.

(SELF-STARTING FROM THE SEAT)

40-45 H. P., $6,000 **Every Car is fully equipped** **60-65 H. P , $7,500**

SEND FOR ILLUSTRATED CATALOGUE *IMMEDIATE DELIVERIES*

THE MATHESON COMPANY OF NEW YORK, 1619 Broadway, New York

COMPLETE VICTORY FOR

Jones Speedometer

Acknowledged to be the Most Reliable Speed Indicator in the World

In awarding the Jones Speedometer the British Automobile Club's

GOLD MEDAL

the committee of judges—fourteen scientific men—ruled that this instrument was the **leading speedometer of the world.**

In competition with eleven speed indicating devices—in which every automobile manufacturing nation of importance was represented—the Jones Speedometer was the only instrument to "stand up" through the 2,000 miles reliability test. The award was made on the points of **accuracy, durability, effect of reversing the car on the subsequent accuracy of the instrument, price, rapidity of response to variations of speed, simplicity of construction and attachment,** and **steadiness of reading.**



The Jones Speedometer entered in this contest was **selected from stock** by the committee of judges.

Jones Speedometer

(Manufactured by JOS. W. JONES)

132 West 32d Street, New York

HEALTH FOR YOU

flows out of the rocks at the various medicinal springs at

FRENCH LICK-WEST BADEN SPRINGS

in the highlands of Southern Indiana. This is the season of the year when a brief visit there will restore the normal balance of your system—renew appetite—put you in condition.

Outdoor and Indoor Recreations in Plenty—Golf Playing Now

Superb Hotel Accommodations.

MONON ROUTE

CHICAGO, INDIANAPOLIS & LOUISVILLE RAILWAY

Hotel Rates range from $8 to $35 per week, including free use of all the waters.

Booklet telling all about the waters and giving list of Hotels and Boarding Houses, with their rates, sent free.

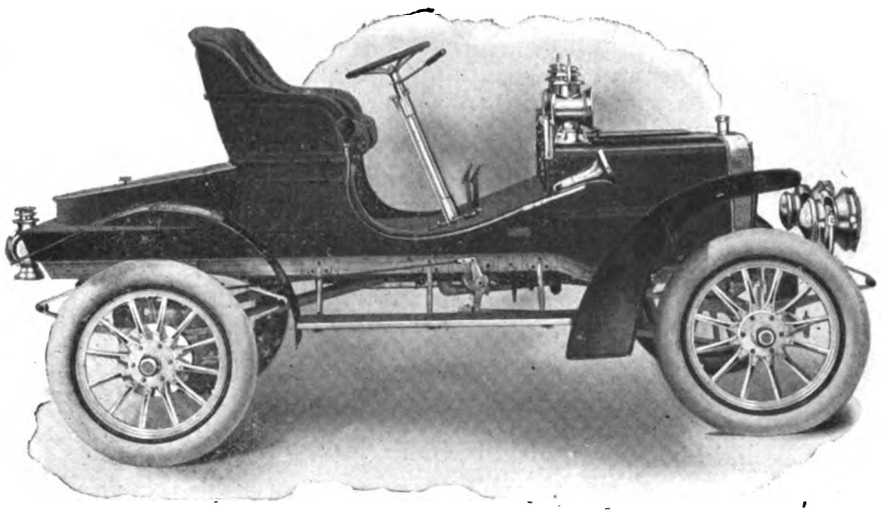
FRANK H. REED, Gen. Pass. Agt., Chicago.

CHAS. H. ROCKWELL, Traffic Man.

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NORTHERN

2 CYLINDER RUNABOUT



The Ideal Doctor's Car

"SILENT AS THE FALLING SNOW." With it the man of medicine may, without loss of dignity, glide into the home of a patient without disturbing the slumbers of the sick, or making a clatter that would wake the dead. The Doctor, better than anyone else, realizes the value of such features. Coupled with them is the famous reliability and ingenuity of the

Sturdy Northern

Day in and day out, in all kinds of weather and in all seasons, the Northern is always ready to respond.

There is no place where any automobile can go, that the Northern cannot go. It is a credit to the judgment of the man who buys it. We make it.

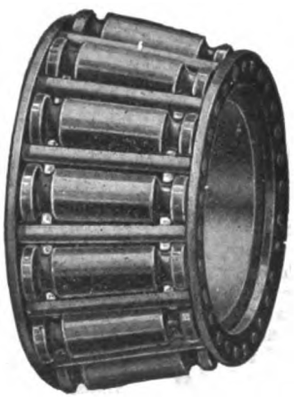
NORTHERN MOTOR CAR CO., Detroit, Mich.

Members Association of Licensed Automobile Manufacturers.

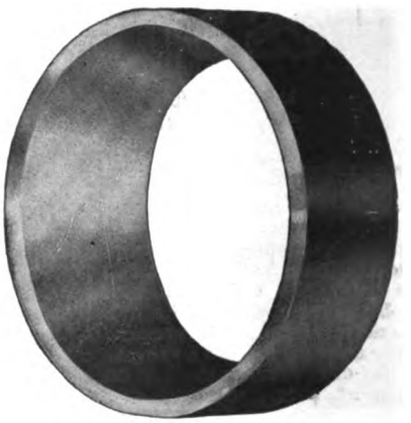
INCREASES THE POWER; REDUCES THE STRAIN



Cone.



Cone and Rollers.



Cup.

THOSE ARE TWO OF THE LARGE PURPOSES WHICH ARE SERVED BY

TIMKEN ROLLER BEARINGS

They are such far-reaching purposes as to induce every person about to purchase a car, to discover whether those bearings are applied to it; and if not, why not.

TIMKEN ROLLER BEARING AXLE CO., - - - Canton, Ohio.

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IF YOU USE SELL HANDLE GASOLENE

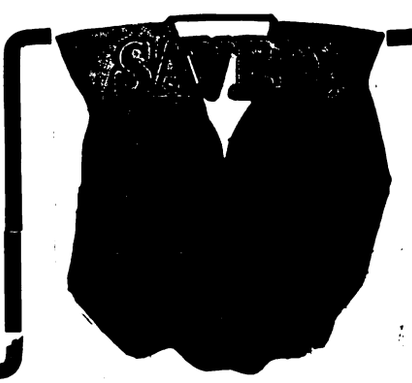
You are not safe from explosion unless you use

THE SNELL HYDRAULIC SYSTEM

Approved by the Board of Fire Underwriters, the Board of Health and the Fire Department.

Gasolene cannot explode unless mixed with air.

The SAFETY TANK is the only tank which is always filled with liquid; gasolene or water or gasolene and water (they can not mix). Any other tank admits air as the gasolene is drawn off and immediately becomes an acute source of great danger. The air also evaporates the most vital part of the gasolene and leaves the remnant with less power units. In the SAFETY TANK these dangers can not happen because no air can get in as the tank is always full of liquid. The Board of Fire Underwriters recognizing the absolute safety of our tank give the users of it a minimum rate of fire insurance. Write us for free descriptive booklet. It will save money for you.



SAFETY TANK COMPANY,

Selling Agents Hydraulic Oil Storoge and Distributing Co.,
DETROIT, MICH.

Central Building, 25 West 42nd Street, New York.

Those who have used

MICHELIN TIRES

always refit with them and those who have not will sooner or later.

If you want the best that can be procured in a tire insist in your specifications that your 1907 car be equipped with them.

There is but one quality of Michelin Tires — that is Michelin quality—a class by itself.

If your dealer don't furnish them write to us.

MICHELIN PRODUCTS SELLING CO.,

31-33 WEST 31st STREET NEW YORK CITY

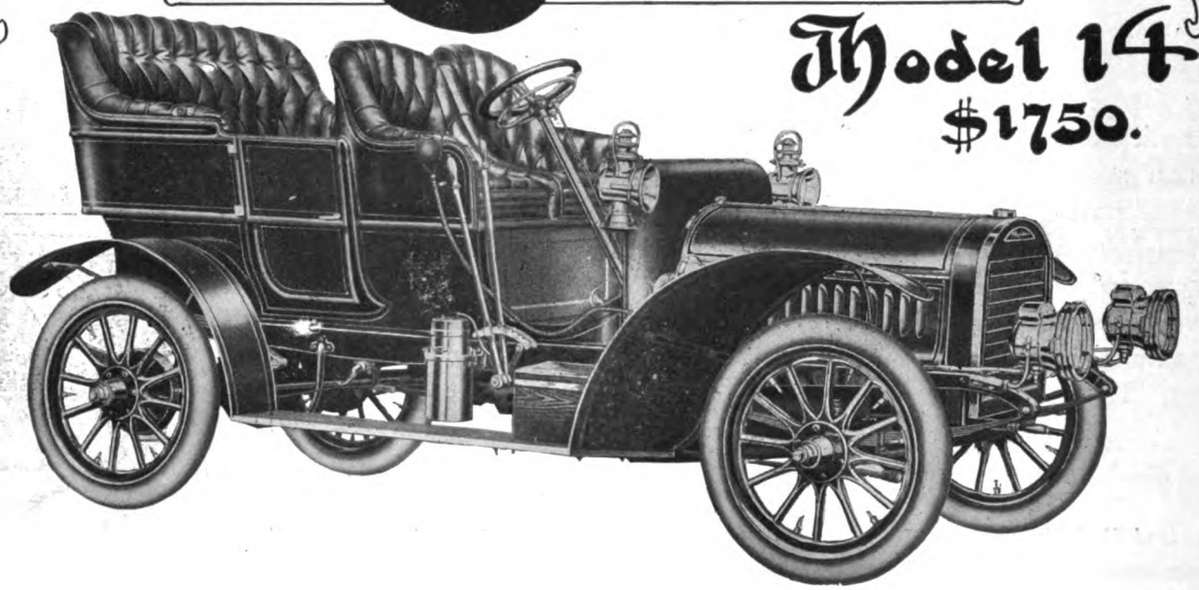
Sole American Representative of MICHELIN & CIE, Clermont—Ferrand, France

E. D. WINANS, General Manager

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Rambler

Model 14
$1750.



A medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THOMAS B. JEFFERY & COMPANY.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, August 9, 1906. No. 10

PALACE IS LEASED

The Motor World's Exclusive News Concerning Independent Show Fully Confirmed — First Week in December Selected.

The American Motor Car Manufacturers' Association have formally abandoned the open air show which had been projected to occur this Fall. Instead, the association will co-operate with the Automobile Club of America in holding a show in Grand Central Palace, New York, December 1st to 8th.

The Motor World's exclusive news that such a situation was pending and that the negotiations to that end had been practically consummated, caused widespread surprise and nowhere was the surprise greater than in the ranks of the two organizations most concerned. The Motor World's story was too positive to permit of doubt and it was confirmed in every respect as soon as the board of management of the A. M. C. M. A. and the A. C. A. Show Committee met in New York on Monday last. Only the specific dates in December remained to be selected and the lease of the Palace to be signed and these details were quickly arrangd. As has been stated, the dates chosen are from the 1st to the 8th, inclusive.

The general plan of the show held under the auspices of the two organizations in the Sixty-ninth Regiment Armory in January last, will govern the December exposition. It will be open to all comers, but whether the sanction of the National Association of Automobile Manufacturers will be again sought is a matter of interesting speculation. It was not until great pressure was brought to bear that the Automobile Club of America applied for sanction for the Armory show and as the N. A. A. M. absolutely controls the Chicago show and as its rules close that exhibition to all who display their wares at unsanctioned shows, the situation that may arise if the A. C. A. assumes the attitude which it originally assumed last year will prove uncommonly interesting.

For the show in Grand Central Palace, the American Motor Car Manufacturers' Association obtains a choice block of 55,000 square feet of floor space. The club will receive one-half of the profits, and the other half will be rebated to the exhibitors. As the building has been leased outright, there will be no third party to share the proceeds.

Those who participated in the final arrangements comprised the Show Committee of the Automobile Club of America, consisting of Gen. George Moore Smith, chairman, Alan R. Hawley, George P. Butler and S. M. Butler and these members of the manufacturers' association: Benjamin Briscoe, William Mitchell Lewis, H. H. Rice, Charles Lewis, Charles E. Duryea and Manager Alfred Reeves.

Licensees to Meet at Niagara.

The annual Niagara Falls meeting of the Association of Licensed Automobile Manufacturers has been fixed for August 23d and 24th. The first day will be devoted to committee meetings, sessions of the show committee, the trades committee and the executive committee being slated to occur. The advertising managers and the directors of the Association Patents Co. will likewise meet and "reason together." On the 24th will take place the open general meeting at which the committees will render their reports. It is understood that the matter of outputs for 1907 will be discussed and that it is not improbable that the show committee will be able to announce the allotment of the spaces apportioned to the A. L. A. M. members for next January's exhibition in Madison Square Garden, the committee's work being much further advanced than is generally supposed.

Winding up of the Pool.

The G & J Tire Association—the so-called "tire pool"—held its final meeting in New York on Tuesday last, 7th inst. The motion of the previous meeting dissolving the pool on Sept. 1st next was ratified unanimously and the supervisor instructed to at once proceed to wind up its affairs.

THE TIRE SITUATION

Despite Anticipations, Little, If Any, Change in Price is Probable—Ajax Launches a Radical Guarantee.

Although the formal and final dissolution of the tire pool is now but a matter of days, surprisingly little information is obtainable regarding the future plans or prices of the several manufacturers who agreed to disagree. None is ready to talk freely, but from what it has been possible to glean, it seems probable that anticipations of a "slaughter" if tire prices after September 1st are doomed to disappointment. Indications point to a betterment of discounts to the trade, but no changes in list price, or not enough, at any rate, to effect the situation appreciably.

About the only recent development of moment is the announcement of a 5,000 miles guarantee by the Ajax Standard Rubber Co., New York, which was organized last November by most of the members of the American Motor Car Manufacturers' Association, purposely to oppose the "pool," although its organization did not affect prices in any way. The Ajax people have been making the most of the pending dissolution of the pool and as they are now in position to supply tires to the public, they have launched their guarantee at a psychological moment. A signed warranty is given with each separate pair of tires, the 5,000 miles limit being conditioned on the inflation of the tires being maintained at a specified pressure and is figured at the rate of travel of 25 miles per day from the date of purchase.

This interesting and radical Ajax guarantee is as follows:

"This certificate is issued by the Ajax Standard Rubber Co., of New York, as a guarantee on Ajax tire No. —, and becomes operative from the above date, and covers a period of six (6) months from said date.

"This tire is warranted for 5,000 miles and against 'blow-outs,' 'blistering' and 'rim-cutting,' as may render the tire useless

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and it is optional with the Ajax Standard Rubber Co. to replace or repair it.

"This tire must be properly inflated at all times and with not less than — lbs. of air to the square inch.

"In case of puncture or other trouble which may cause deflation, the tire must not be ridden upon (rim-cutting as a result is not covered by this guarantee). Damage, occasioned by contacts with any obstruction in the road, is not guaranteed, and such damage must be repaired at once and at owner's expense.

"When a tire is replaced with a new one, mileage will be charged for on the basis of the life of a tire being 5,000 miles.

"This tire shall be presumed to have furnished not less than (25) miles each day from the date of this certificate.

"Upon making any claim, this certificate must accompany the tire, and all tires must be sent to us for examination, express charges prepaid. Our decision to be final in all cases."

June Exports Jump $200,000.

While a comparison of the monthly totals is illustrative of the manner in which the American export trade in automobiles is constantly growing, nothing shows it so strikingly as placing the results of a more extended period besides those of former days. June shows a jump in excess of $200,000 over the total of June of the year previous, or from $313,499 to $539,268, but it also marks the end of the fiscal year during which the increase has been close to fifty per cent. or just over $1,000,000, as compared with 1905. The rate of increase is even more clearly apparent when 1904's total of $1,895,605 is considered.

Examination of the detailed report for the month shows that the gain is not confined to any particular country but is general, although the upward trend is far more gradual where automobile manufacturing countries, such as France, Italy and Germany are concerned. Probably the most substantial for the month is that of a market much nearer home, namely, Mexico, which is credited with $80,934 as against $48,690 last month. The figures in detail are as follows:

Exported to:	June.	12 Mos.
United Kingdom	$194,709	$948,995
France	56,495	282,317
Germany	20,107	99,732
Italy	20,612	265,970
Other Europe	40,959	199,589
British North America	92,429	648,438
Mexico	80,934	422,626
West Indies & Bermuda	4,089	241,353
South America	18,899	96,174
British East Indies	2,947	37,644
British Australasia	5,353	160,944
Other Asia and Oceania	603	50,335
Africa	125	28,529
Other Countries	1,007	14,370
Total	$539,268	$3,497,016

THIEF GOING THE ROUNDS

Has Tricked Dealers in New York, Buffalo and Detroit—How he Operates.

Dealers, garagemen and accessory houses should be on their guard against "Mr. Douglass," "Mr. Kennedy" or any other plausible gentleman who may be in want of supplies or whose employer may be in want of them and who will foot the bill immediately it reaches him. "Douglass-Kennedy" will "catch them if they don't watch out." He is a much-traveled and quick traveling fellow and is likely to have one name to-day and a wholly different one to-morrow.

He has already "caught" a number of unwary dealers and at least one branch house and William H. Keeler, a citizen of Albany, N. Y., and one time upholder of the majesty of the law in that county of the same name, has received the bills—but has not paid them. He has long been known as the possessor of houses, lands, hotels, restaurants and many other goods and chattels of various sorts accumulated both before and during his official career, but none of his friends were aware that he had annexed a large touring car, which was gyrating all over the face of the map, until he began to receive bills for supplies, repairs and the like, not to speak of the lodging and refreshment of the chauffeur.

The game is an old one and the individual who has selected the ex-sheriff of Albany county as the mark upon which to practice it is evidently not new at the ropes. He has been covering the scenery between stops at a rapid pace, scattering charges of all kinds in the name of the owner of the car he was driving who was always somewhere behind, sometimes half a day, sometimes just a few hours and who was coming on by train according as the crook's imagination developed new kinks. What the unaccountable reason that caused the owner of the palatial touring car to be always dropping off to take trains, does not appear, but the explanation that he would shortly catch up and attach himself to the car, not to speak of the bills, always seemed to go.

The ex-sheriff's first intimation of the fact that he was the possessor of such an expensive luxury was in the shape of a notice that he had been in New York the day before and that his chauffeur, Mr. Kennedy or Mr. Douglass, according as the aliases shifted, had happened to need a few essentials for his automobile as well as for Mr. Keeler, to whom the bill might be sent with the perfect assurance that it would be liquidated on sight.

The next thing the ex-sheriff knew he found that he had been in Buffalo and had been reckless with his spending money in the same careless way that made him pile up such a bill in New York—at least, his phantom automobile had been there and his chauffeur had happened to need a few little things. And some of the items in the bills bothered the ex-sheriff. He was not as well up on automobile technology as a man who is the reputed owner of a large touring car should be, and he could not fathom the meaning of such cabalistic items as "one 34-4, or 4-11-44," he is not sure which.

Within a day or two Mr. Keeler next learned that he was or had been in Detroit and that his bill for repairs, sundries and a small item of lodging his "man" footed up to $128. As yet he does not quite know where his triumphal tour across the country is to land him next, but his ambitions to undertake an actual tour, if he ever had any, have simmered down to the impression that such a proceeding consists of nothing so much as bills. As two tires which "Kennedy-Douglass" acquired on Mr. Keeler's account while in New York have been recovered from a local concern, it is evident that the perigrinating thief is selling the goods as fast as he obtains them.

Kobusch Renews Original Arrangement.

The Kobusch Automobile Company, the million-dollar manufacturing establishment of St. Louis, will be absorbed by the St. Louis Car Company, and will be operated as a part of the railway car plant. Arrangements are now being made to merge the automobile company in the car company.

As the St. Louis Car Company controls the stock of the Kobusch Automobile Company, George J. Kobusch being the dominant officer in both institutions, the merger will be accomplished without any difficulty. The automobile company was originally operated in connection with the car company, and the new arrangement practically will be merely a return to the original order of things.

The Week's Incorporations.

New Haven, Conn.—The Connecticut Automobile Company, under the laws of Connecticut, with $10,000 capital, of which $5,500 is paid in; to take over and conduct the automobile business of Nathan B. Whitfield. The incorporators are Jeremiah C. Smith, Thomas Whitfield and David E. Fitzgerald, all of New Haven.

Kansas City, Mo.—Ettwein Motor Car Co., under the laws of Missouri, with $20,000 capital, all paid in. Incorporators—Charles F. Ettwein, Frank B. Clyatt and Ernest L. De Mann.

Passaic, N. J.—Empire Garage Co., under New Jersey laws, with $20,000 capital. Incorporators—August Breitthauer, H. Caulson Fairchild and Alfreda Fairchild.

Maxwell-Briscoe May Move.

It is not unlikely that Tarrytown, N. Y., will lose the Maxwell-Briscoe plant. It is known definitely that removal is contemplated and advices from Elkhart, Ind., state that both Messrs. Maxwell and Briscoe are due in that city on August 15th to inspect a site and consider an offer that has been made to induce them to locate there.

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PROF. THOMSON ON ALCOHOL

One of the First to Favor that Fuel, his Views Undergo Some Revision.

Although Prof. Elihu Thomson was one of the men who was foremost and most vigorous in picturing a great future that denatured alcohol held for the automobile industry and in pointing to Cuba as a base of supply, the passage by Congress of the denatured alcohol bill appears to have at least slightly affected his views.

"Notwithstanding the fact," Prof. Thomson says in a recent interview, "that the heating value of alcohol, or the number of heat units contained, is much less than that in gasolene, it is found by actual experiment that a gallon of alcohol will develop substantially the same power in an internal combustion engine as a gallon of gasolene. This is owing to the superior efficiency of operation when alcohol is used. Less of the heat is thrown away in waste gases and in the water jacket."

The fact of the matter is that gasolene develops vastly more heat than is needed for internal combustion engine purposes, hence the cooling processes to which the cylinders must be subjected by water jackets or air-cooling devices. On the mere matter of heat units, a much lower grade of alcohol could successfully be contrasted with gasolene than appears to be the case. The 90 per cent. grade is the popular one for industrial purposes, and it can even be used lower, so much so that the percentage of heat units in favor of gasolene may be nearly two to one.

"The return for the unit of heat in the work done by the engine," explained Prof. Lucke in his laboratory, "depends chiefly upon the compression before the explosion. We can compress a weak solution of alcohol 50 per cent. more than gasolene. There is no danger of pre-ignition as would be the case were an attempt made to compress gasolene in the engines now in use to a greater extent than is customary. This danger is eliminated by using weak alcohol.

"On the subject of alcohol as a suitable fuel for automobile use we encounter a different proposition. From the present outlook it seems as though gasolene will continue to be the most serviceable fuel. We use a smaller clearance space to get a higher compression, and, in the use of alcohol in motor cars, the effort is to be along the line of the maximum of economy for the greatest possible power, the engine would be so hard to turn—that is, to start by the crank shaft—that it would be practically impossible for a man to do it. To make the automobile-using alcohol convenient to handle, changes in compression must be made, and this will weaken the efficiency of power from the alcohol fuel. To make alcohol a commercial and economic possibility for automobiles, it must sell for just about half the price of its equivalent in gasolene, as practically twice the amount of alcohol must be carried to do the work. This would necessitate an enlargement of the fuel tank or refilling it at shorter intervals.

"Why are automobile manufacturers experimenting with the use of alcohol then? So as to be ready to give the public what it wants in case the cost of alcohol makes its use an economic possibility. Experiments in automobile use are yet in their first stages, and mechanical improvements may be devised which will lessen some of the present difficulties. The question of cost will be the prime factor. In the stationary engines the problem is easier because by large flywheels the engines can be started without trouble.

"No one knows what the cost of denatured alcohol will be. According to statistics it should be made and sold at a fair profit at from 18 to 25 cents a gallon, perhaps less. Whatever it may be manufactured it will still be under Government supervision, and when released from bond the revenue officers will see that it is properly denatured. The leniency of the Government in allowing alcohol distilleries to be set up wherever there is a legitimate demand for them will assuredly have some effect upon the cost."

Opposing the Steering Wheel Pool.

Opposition to the big increase in price instituted by the recently formed steering wheel pool has been quick to assume definite shape.

Richard Irvin & Co., the New York bankers and brokers, this week addressed a communication to all automobile manufacturers stating that they had practically completed arrangements with a well-known manufacturing establishment for the production of 25,000 steering wheels to meet the demand for 1907 and in substance soliciting their orders.

It is understood that Irvin & Co. expect to be able to approximate the quotations that prevailed before the Centaur Motor Co. and the American Wood Rim Co. formed the pool and boosted the prices.

Andrews and His "Parts Show."

The "automobile parts show" which did not occur in the First Regiment Armory, Chicago, in September last, has been "revived" and is now billed to occur in that building from the 22nd to the 28th of next month, inclusive. A. M. Andrews, who figures as secretary of the organization with a long name, which fathered the original venture, is behind the present effort. It will be recalled that because the Motor and Accessory Manufacturers refused to sanction his last year's undertaking, Andrews instituted proceedings for what he termed "trespass" and damage, and it is alleged that his present attempt is designed to have a bearing on that suit.

WHEN THEY MET IN DETROIT

Chief Opponents in Selden Litigation Encounter Each Other and Things Happen.

In Detroit, they are talking of a meeting during the recent gathering of A. L. A. M. engineers in that city, of four men that caused the beholders to fairly rub their eyes.

The men concerned are Charles Clifton, president, and George H. Day, general manager of the Association of Licensed Automobile Manufacturers, and Henry Ford, president, and J. E. Couzens, secretary-treasurer of the Ford Motor Co.—the two concerns that are now embroiled in the most stubborn litigation involving the Selden patent.

As the story goes, Messrs. Clifton and Day were seated in the lobby of a Detroit hotel when a Ford car drove up and Messrs. Ford and Couzens got out of it and entered the hostelry. It was plain that neither pair expected to see the other, but if any of the several tradesmen who chanced to witness the sudden meeting anticipated an exchange of black looks or a squaring off, they were sorely disappointed. It is true that after the first surprise, Henry Ford's right arm shot out suddenly, but an extended hand was at the end of it and it was quickly and warmly grasped by the A. L. A. M. chiefs. In no time at all the quartette were engaged in cordial conversation and, after a while, a man with sharp ears heard Ford suddenly inquire:

"How'd you like to look over our plant?"

"We'd be delighted to do so," is the response credited to the other side.

The four then got into the Ford car awaiting at the door and were whirled to the Ford factory.

None who witnessed or has heard of the incident expected such an exchange of courtesies and it was inevitable that a choice crop of laughable rumors should result. They range all the way from the settlement of the Selden suit to the admission of the Ford Motor Co. to membership in the A. L. A. M.. But those who know the determination of both sides to the litigation are only too well aware that anything of the sort is beyond the bounds of possibility.

To Build Commercial Vehicles.

H. G. McComb, assistant engineer of the Olds Motor Works, and Schuyler S. Olds, who was identified with the Olds sales department, have resigned their positions to embark in the manufacture of commercial vehicles. They have obtained the necessary financial support, but the company probably will not be formed until McComb's return from Europe, whither he has just departed to pursue certain investigations.

E. R. Braley, Pasadena, Cal., has placed contracts for the erection of a $70,000 garage on South Raymond street, that city; work will be commenced immediately.

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Much has been written and printed concerning the care and use of tires for automobiles and much misinformation has been circulated.

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NEW YORK, AUGUST 9, 1906

Making for Tire Mischief.

One of the evils directly invited by the loosening of all restrictions on tires is showing its head even sooner than was anticipated. There are several automobile manufacturers bent on equipping their cars with tires of smaller diameters than prudence, experience and the dissolving tire a state of affairs.

Their tendency, once so general and so mischievous, was the cause of much friction between the producers of tires and cars; the situation had been but little more than relieved and it is a distinct misfortune that efforts are making to again precipitate such a state off affairs.

Of course, it is quite natural that automobile makers should wish to save the tidy sum represented by the difference of an inch or a half-inch in the diameter of a set of tires, and it is just as natural that the tire makers should oppose the use of the smaller tires. They know the weights they are capable of sustaining and know as well that when the mischief which is invited by the small tires is done, it is the reputation of the tire that is injured—not that of the car. The idea that the stand for larger tires is due to the tire manufacturers' aim to swell their coffers does not always stand the test of truth. We ourselves know of one very recent instance in which at least one tire maker resolutely refused even to submit quotations on tires of a size that in his judgment courted trouble.

The situation is not a comforting one. "Tire trouble" has played an unduly heavy part in adding to the burdens of automobiling and, aside from the pecuniary end of the situation, the tire manufacturers are entitled to a full measure of sympathy. There is every reason why they should so earnestly strive to protect themselves.

The principal sufferer is, however, the owner of the car equipped with undersized tires. The woes and the expense fall on him and he in turn makes things uncomfortable for the dealer. They, therefore, should work together in seeking to avoid the mischief that is casting its shadow before. The dealer should be honest enough to frankly advise his patron regarding the proper sizes of tires and the latter, if he is wise, will not remain content until he has fully satisfied himself on the point. The pleasure obtainable from the finest engine and the most luxurious body in the world is in a large measure regulated by the tires fitted to the car.

The Place for the Brake.

Experience during the past year or two has demonstrated in a manner as conclusive as it is striking that the place for the brakes is on the rear wheels. Before the advent of the automobile, brakes were usually a minus quantity except on heavy trucks and in such cases were of the most primitive order—the only type was that pressing directly against the tire. With the vastly greater power and speed of the motor car, not alone better but more numerous means of bringing a vehicle to a stop were required and the problem of applying two or more different means of braking to the rear wheel itself appeared a difficult one.

As a result, other methods were resorted to and from them were evolved the brake on the transmission and the brake on the differential, both obviously places that should not be subjected to sudden shocks such as are bound to be produced by the necessity for a sudden stop. And, moreover, places in which the application of the braking effect was not always certain of producing a stop through derangement of one or more of the chain of parts through which it had to pass before reaching the rear wheels. The braking of the cardan shaft or any other part of the transmission upon which the brake in question depended for its effectiveness, has in cases of emergency that have resulted fatally, strongly emphasized the fact that the brakes should be centered as far as it is possible to do so on the place where they are to take effect. That, of course, means the driving wheels.

A tendency in this direction was manifest as early as last year and not a few cars were staged at this year's shows on which the brakes were centered on the drivers. So much so, in fact, that the practice of using a braking drum gripped by an external brake as well as one of the internal expanding type has become quite a feature of standard practice. It is a step in the right direction and one that should do much to avert tales of disaster that are epitomized in the phrase the "brakes failed to work."

Promises that Foster Ill Will.

Of all the accusations made against the builder of automobiles, none appears to have more foundation in a greater number of instances than that many of these same makers have undertaken tasks far beyond their ability to perform—a practice that has been general with many of them in the past year or two and one that finds its most expressive equivalent in the vernacular expression of having "bitten off more than they can chew."

In other words, they have promised a great deal more than they were able to fulfill, and what is worse, a great deal more than they had any reasonable expectation of being able to fulfill. They have promised deliveries of cars on April 1st; taken the purchaser's deposit to bind the bargain at show time and in July that same buyer has still been without either his deposit or his car. They have sold two hundred cars where the possible output of their factories was not in excess of one hundred and just there's the rub.

In his excessive zeal to do business—and it is a pardonable failing in the members of any industry—the small manufacturer has bound himself to do a great deal more than he was able, and a great deal more than he knew he could possibly accomplish at the time he made the contract and accepted the other party's money.

The most reprehensible part of this practice is to be found in the fact that the

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maker cajoles the customer into believing that he will get the car in a short time—that in another week, or at most, a fortnight, he will have his car and in this way time drags along until it is mid-season or later before it actually materializes. At the rate that one year's model now follows another, his car is already out of date by the time he gets it. It is a practice that is responsible for much ill-feeling on the part of all concerned, buyer, agent and last but not least the cause of it all—the maker himself. However, as the majority of builders will have their 1907 models ready by September, there should be less reason for the existence of the evil next year.

Substitutes for Air Tires.

Inventors may come and inventors may go, but the pneumatic tire goes on forever, seems to represent in a nut shell the status of the present universally used type of tire and of the horde of inventors who are vainly trying to displace it with something that shall possess all of its advantages but lack its defects. While the history of great inventions clearly shows that it is never safe to deride a device or its inventor regardless of how bizarre or far fetched his idea may appear at first sight, there would seem to be little little of permanent value in the mass of spring devices that are now appearing so constantly as to run a close second to the non-refillable bottle and the rotary engine in the patent records.

People, great and small, learned and otherwise, ridiculed the telegraph and the telephone to a far greater extent than is the lot of the airship of to-day, and not alone the average tire user but the tire maker without exception, regards with amused contempt the thousand and one attempts to utilize wierd and freakish combinations of springs and rubber to obtain the degree of resiliency that experience thus far has demonstrated is only possible with rubber and canvas-confined air. There are two fundamental principles upon which rest the value of the pneumatic tire—the extreme elasticity of compressed air in which respect it is equalled by no other known substance, and the fact that this indispensable quality is applied directly at the place where it is most required—the point of shock.

Many of the devices that have come and gone in the past year or two have had incorporated in their make-up one or the other of these principles. Many have placed the springs about the rim in the attempt to concentrate the desired effect where most wanted; others have employed rubber confined air about the hub and yet others have virtually placed a pneumatic tube beneath a solid rubber tire, only altering the construction of the wheel itself to the extent necessitated by the changed form of rim. With the exception of the last, which is really a form of pneumatic tire, neither of the most numerous classes have embodied both of these sine qua non without which the results now afforded by the pneumatic tire are impossible.

Whether a device that will do so effectively will ever materialize, or whether one of the army of geniuses that is laboring to this end will succeed in discovering some totally new method of achieving this much desired result is a subject upon which it is not easy to predict. One thing is certain and that is that no great amount of progress has been forthcoming as yet, and that little or none is to be expected from further adherence to the ideas that have been proven to be fallacies time and again. It would doubtless be better for those most interested if the slate could be wiped clean and a new start made.

It is evident that there are still some people who think that the only difference between the horse drawn and the power propelled vehicle lies in whatever makes them go. Since the day when pioneer investigators finally came to a realization of the fact that an automobile was not merely a horseless carriage, and that putting a gasolene motor on a buggy stripped of its shafts did not constitute one any more than putting a little larger motor of the same kind on a grocer's wagon made a power truck, there have been fewer of this gentry, to be sure. But the man who confidently believes that he can make a huge success of something that unnumbered others have dropped before him is always with us.

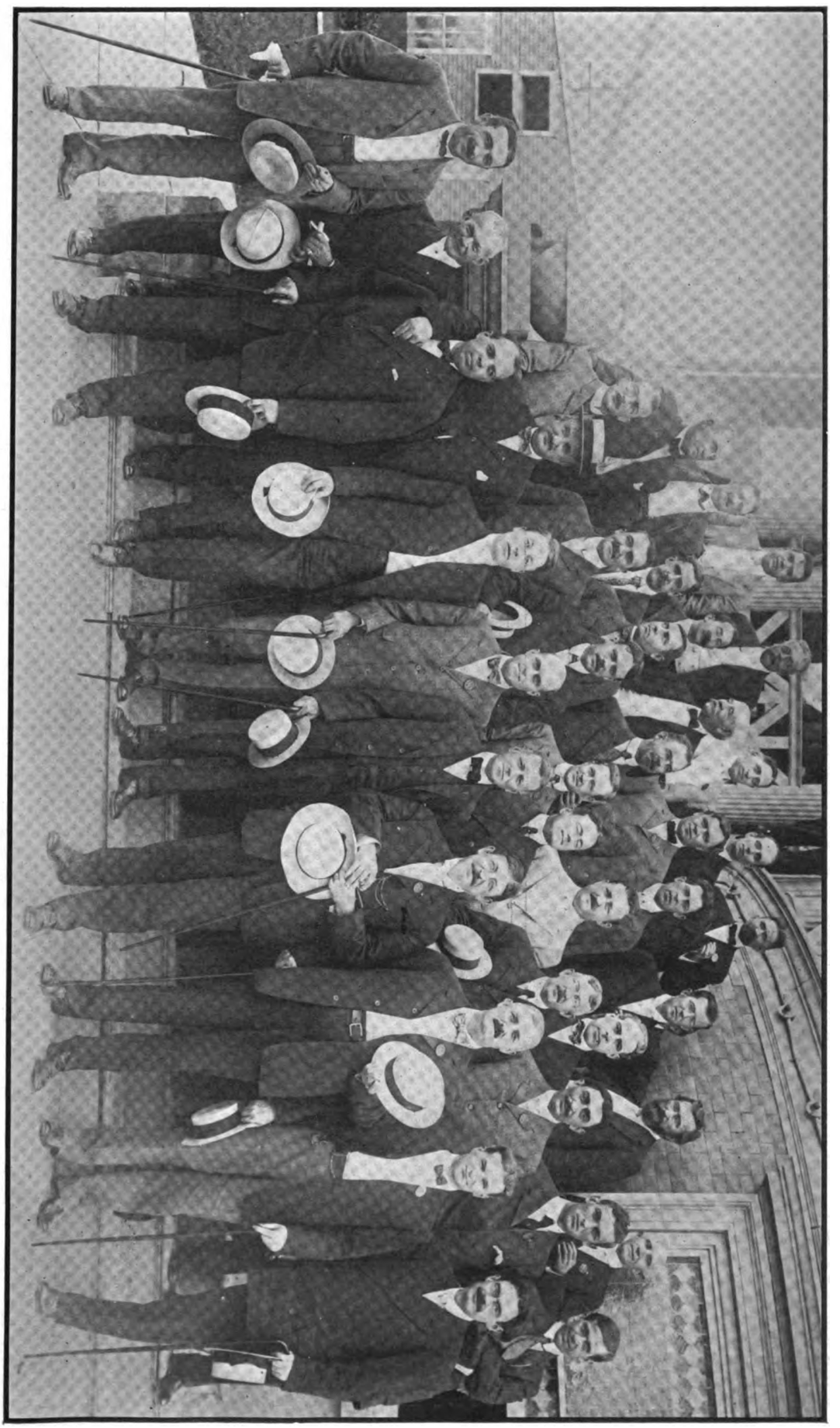
Hitherto the exploitation of the shaftless buggy with the gasolene motor on it has been peculiarly an American pastime, and the same seems to be true of the "hitch it on to any old wagon in a minute" style of automobile, although so far as known, the only one tried here was an Italian invention. Now the germ has made its way "across the pond" and London is soon to be treated to an exhibition of the kind that New York had two or three years ago—the sight of an ordinary wagon, shorn of its shafts and front wheels in place of which there has been substituted a power driven pair with all the necessary accessories. The idea is identical in both instances and there is little probability but that the outcome will be likewise.

Despite the dire and oft-repeated warnings as to the fate that would sooner or later overtake the much extended car, wheel bases continue to lengthen. What was looked at with a feeling akin to awe but two years ago and which was viewed with much solemn head shaking and predictions as to sagging and buckling frames, is now sacredly the span of the modern runabout. Further and further have the driving wheels been separated from the steering wheels with scarcely any increase in the cross section of the frame members nor any undue amount of bracing. Multiplication of the number of cylinders and the demand for even more roomy and luxurious bodies have forced the designer to reach out in both directions, the lengthening process in many instances having been equally divided before and behind the dash, while in others it has been confined to the requirements of the longer motor giving such cars the appearance of being all bonnet. The 100-inch wheel base that but two years ago made designers stare has now passed 130 inches but the record does not stand long. From the manner in which an inch is tacked on and made two inches it seems as if the builder had come to the conclusion that he could "go as far as he likes."

Breaking the laws governing the speed of automobiles constitutes one of the few crimes that it is cheaper to plead guilty to and pay a fine than stand the cost of a trial with the same result in the end. With the exception of the so-called courts of justice of the French Revolution, there have never been tribunals of any degree that can show such an unbroken line of convictions as those which make a practice of mulcting the motorist. Instead of the "not guilty—but don't do it again" sentence of the Southern court passed on the participants in a lynching bee, the average justice's court proceeds on the plan of "guilty—now what have you to say for yourself?"

To the man in the car its speed invariably seems less than the reality, while to the observer on the curb its actual rate of progress is magnified considerably. This explains some of the widely diverging tales in court. And both sides think they are telling the truth.

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THE MOTOR AND ACCESSORY MANUFACTURERS, INC., AFTER THEIR RECENT MID-SUMMER MEETING AT ATLANTIC CITY.

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FEW ENTRIES AT NEWPORT

Beach Carnival Proves Rather Tame—Mile in 53 Seconds the Feature.

Rhode Island's society capital—"the abode of wealth and alimony"—started on the celebration of its carnival on Tuesday last, the 7th inst. Not that carnivals are anything novel to Newport—they are of annual recurrence and are only supplementary to the bizarre attractions of the place that form a continuous performance, but in the present instance the grand opener as well as the piece de resistance was an automobile meet that attracted a crowd of 3,000 people to Sachuset Beach.

The beach forms an admirable natural amphitheatre for the sport as the entire length of the mile course paralleling the bay in the shape of a huge fish hook is lined with sloping hills that afford excellent accommodations for large numbers of spectators. At the east end, or what would represent the barb of the hook, was the starting point, while the finish was across the bay on an excellent straightaway stretch. But the track itself was not of the best owing to the narrowness of the hard strip and the fact that it was still wet, which caused some of the cars to skid badly, despite which excellent time was made in one or two instances.

Although a good card was provided, the running of the earlier events was typical of the style of racing that has made automobile meets tame affairs, possessing but slender attraction for a sport-loving public. The small number of entries was disappointing and the walk-away processions that three of the heats were converted into robbed the events of all interest. In some instances there were only two entrants, in which case no second prize was awarded, cups of the value of $50 for first and $25 for second were offered in each event, with $25 and $15 cups for the motorcycle events, a Persons motorcycle saddle being given as a third prize.

In spite of the moist sand and the general lack of sporting flavor that characterized the earlier part of the meet, the card brought forth three events which proved exciting. One of these was an exhibition mile by L. F. N. Baldwin in a Stanley steamer, which was covered in the surprisingly good time of 53 seconds. And it was an event that brought out the imperfections of the odd shaped course in a startling manner and gave the police force of U. S. marines a few minutes' lively work. Baldwin shot by the finish line like a rocket in full flight and was going so fast that a turn was out of the question. He headed directly for the crowd closing the lower end of the course, and the spectators scattered in all directions, but an unwary boy on a bicycle got in the way and was knocked down. He was not hurt, but there was not much left of his machine. Baldwin ploughed through the soft sand and dirt for some distance before finally getting the car under control.

The fourth event, which was an invitation match race, proved to be a nip and tuck struggle between John F. Pugh in a 28 horsepower Queen, and C. D. Snow in a 20 horsepower Stevens-Duryea, the former finally drawing ahead and crossing the line by half a length in the lead in 1:20⅕. The event for gasolene cars of not more than 15 horsepower was even more closely contested, E. L. Baron in a 10 horsepower Ford and C. B. Nordhoff in a Maxwell of the same power, flying down the entire length of the home stretch on even terms so that it was absolutely impossible to pick the winner until the last moment, when Baron forged ahead and won by less than a bonnet in a rousing grand stand finish.

What had promised to be the event of the day, a match race between a Stanley steamer and J. R. Hardman's De Diotrich racer, to be driven by Joseph Downey, as the latter car's differential broke while running over the course. Robert Goelet stepped into the breach by challenging Baldwin in the Stanley steamer to a mile against his 24 horsepower Renault. This was declined and Goelet then did an exhibition mile in the very slow time of 1:42⅗.

The special event for the Stanley steamers turned out to be quite a disappointing fizzle. Three of the 10 horsepower machines faced the starter, but in attempting to get away, G. H. Burnham put out his fire and was left dead at the post, while early in race N. M. Laporte drew away from W. W. Little and finished with fully a quarter of a mile between them. Baldwin then ran an exhibition mile in 53 seconds, which was a most creditable performance in view of the condition of the course.

The first race of the day was for motorcyclists, for which there were eleven starters. W. T. Bowler, a Newport youngster, riding a 2½ horsepower Indian, got a good start in the first heat and was never headed. He crossed the tape in 1:06⅘. D. W. Riley, a Providence rider, caught his trousers pocket on the saddle in trying to start and was thrown heavily, breaking off the left pedal of the machine. He pluckily entered the next heat and managed to qualify by finishing fourth. Stanley T. Kellogg, of Springfield, Mass., on a 2½ horsepower Indian, easily won the second heat in 1:10 and in the finals he got away quickly and far outdistanced his field, though the time was the poorest of the day, 1:15⅖.

The summaries:

One mile for single cylinder motorcycles—First heat won by W. T. Bowler, Indian. Time, 1:06⅘. Second heat won by S. T. Kellogg, Indian. Time, 1:10. Final heat won by S. T. Kellogg; second, W. T. Bowler; third, E. L. Buffington, Indian. Time, 1:15⅖.

One mile for two-cylinder gasolene cars not exceeding 15 horsepower—E. L. Baron, 10 horsepower Ford, first; C. B. Nordhoff, 10 horsepower Maxwell, second; R. E. Darrah, 14 horsepower Pope-Toledo, failed to finish. Time, 1:48⅖.

One mile for stock touring cars ready for the road, carrying three passengers and having catalogue equipment—B. I. Blackington, first; L. F. N. Baldwin, second; W. Hill, third. All driving 20 horsepower Stanley steamers. Time, 1:10⅘.

Invitation match race, one mile—J. F. Pugh, 28 horsepower Queen, first; C. D. Snow, 20 horsepower Stevens-Duryea, second. Time, 1:20⅕.

One mile for stock Stanley steamers with regular catalogue equipment—N. M. Laporte, first; W. W. Little, second; G. H. Burnham did not finish. All cars 10 horsepower Stanley steamers. Time, 1:19⅕.

One mile exhibition—Robert Goelet in 24 horsepower Renault. Time, 1:42⅕.. L. F. N. Baldwin, in Stanley steamer. Time, 53 seconds.

To Found an Automobile Museum.

Things certainly move quickly in the automobile world for although the industry is scarcely a decade old, the suggestion that a museum for the storage and exhibition of relics showing its progress is already being seriously considered. An Englishman has offered his car of the vintage of 1895 to the Automobile Club of Great Britain for that purpose and as soon as the collection assumes sufficient proportions it is said that the idea of establishing an automobile museum will be undertaken.

The idea of preserving these pioneer cars struck here even earlier, as Elwood Haynes' runabout of 1892 was given a niche in the Museum at Washington last year.

German Tax Affecting Touring.

Germany's new automobile tax which falls on the just and unjust alike—in other words, the transient as heavily as the resident, is said to be having an adverse effect on the country's attractions as a touring ground already, although the law only went into effect on July 1st. Tourists have decided to boycott the Fatherland, so that it is said that the demand for German "tryptiques" in Holland has practically ceased while those who found themselves with permits of this kind are seeking to have them exchanged for similar documents to be used in other countries where no such tax is imposed.

Accident Statistics from Cleveland.

Coroner Siegelstein, of Cleveland, Ohio, has undertaken to show the people of that city that the automobile is the least dangerous of conveyances, as disclosed by the accident records of Cleveland for 1906, on file in his office. During the seven months of the year, ending July 31, wagons have 73 deaths attributed to them, railroads 55 and street cars 36. Automobiles have caused the fewest deaths, according to the coroner's statement, only four being recorded during that period.

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GAVE GOLD CUP FOR TON MILES

Minneapolis's Gallon Test Decided on that Basis—Results Varied Greatly.

Twenty-two miles on one gallon of gasolene is the record of C. Bergstrom's Aerocar, which won first honors and the gold cup in the one-gallon efficiency test conducted by the Minneapolis Automobile Club, in that city last Saturday, 4th inst. The Aerocar won the trophy on all around efficiency, having the best ton-miles score, which formed the basis of award. The test was eminently successful to all concerned but provoked agrarian comment from returning farmers, who did not understand why so many cars should be "tuckered out" along the roadside. In fact, one old hardened son of toil, clad in overalls tucked in brown-topped rawhide boots and with a dilapidated straw hat topping a grizzled sunburned face adorned with a luxuriant mid-summer growth of whiskers, who was driving a nondescript equine back form Minneapolis to liis farm out Minnetonka way, was heard to remark, as he meditatively chewed on the end of a wisp of hay:

"Twenty-three autymobiles stuck along the Superior pike, by heck! Plumb petered out and stuck and the half-baked ijjits who spent good money fer the things a-settin' there smokin' seegars and waitin' for someone to give 'em a lift. I kinder reckon the ol' buckskin team'll be good enough for me. They ain't burning no weeds off the roadside ner leavin' no stink behind 'em, but gosh all fish hooks, they kin be trusted to find their way back to their oats. Giddap, there, what ye feared of?"

This was the humble soil-tiller's opinion, but far different from that entertained by the drivers of the cars, who were only awaiting the official measurer and the relief fuel.

The start of the test was made at Hennepin avenue and Thirty-first street, and the course led to Lake Minnetonka, turning to Superior boulevard, near the old Wayazata station. From thence the cars ran up Lyndale to Hennepin and on to the starting point and beyond, if the measured gallon of fuel held out. The measured distance of the course was 26.8 miles.

Each car was supplied with one gallon of gasolene by the officials, the car weighed and started. The course was marked by flags and further denoted by confetti strewn on the ground. Naturally, each car was run until the last drop of fuel was exhausted, and the distance, indicated by the odometer of the judges' car, multiplied by the weight of the contesting car made up the score in ton miles. An official observer traveled with each car.

All the cars passed Wayazata and five made the complete circuit or better. The heavy cars were the first to finish, while, of course, the lighter machines ran up the big mileage. Neither class figured very largely in the results as the middle-weight cars captured the trophies.

The long run was made by Harry Pence's Orient Buckboard which forced the judges to make a double circuit of the course. The little machine was declared officially dead at 43.7 miles. The next longest run, 34.55 miles, was made by Moulton's Franklin.

Each car that completed the test under the rules will receive a certificate of award, while the seven big scorers—namely, Aerocar, Frayer-Miller, Buick, Stevens-Duryea, Packard, Stoddard and Autocar, will receive prizes ranging from gold and silver cups and medals to an inner tube. Following is the score and distance made by each competing car:

Car and Owner.	Distance Miles.	Ton Miles.
Aerocar, Bergstrom.....	22.0	35.495
Frayer-Miller, Thornhill	22.0	34,370
Buick, Riddell	22.95	32.818
Stevens-Duryea, Pence	23.3	31.396
Packard, Piper	17.6	31.328
Stoddard-Dayton, Haynes ..	18.55	31.164
Autocar, Pence	33.6	30.144
Kansas City, Fawkes	13.0	30.260
Franklin, Moulton	34.55	28.849
Rambler, Pauley	20.15	28.221
Franklin, Kerr	25.3	26.944
Autocar, Pence	15.05	25.095
Buick, Pence	17.3	23.489
Franklin, Moulton	26.8	23.182
National, Fawkes	11.5	22.712
Franklin, Lowrey	27.2	22.508
Rambler, Fawkes	15.0	22.350
Orient Buckboard, Pence ...	43.7	19.665
Maxwell, Chase	24.6	19.065
Jackson, Thomas	18.15	18.674
Stoddard-Dayton, Riddell ..	18.0	17.370
Maxwell, Allen	23.2	16.820
Northern, Paine	21.4	16.050

Mexican Club with Governor President.

The Automobile Club of Guadalajara has been organized in the Mexican city from which it derives its name, with Governor Ahumada as president. One of the principal objects of the new organization is the establishment of good roads in the State of Jalisco, and in this work it is certain the club will have the assistance of the State government. It is planned to build roads suitable to automobiles from Guadalajara to many of the principal points in the State. The club also plans to hold several long-distance automobile races. The other officers of the organization are: Vice-president, Alfonso Fernandez Somellera; treasurer, William Kunhardt; directors—Julio Collignon and Enrique Alvarez del Castillo.

Enforcing a Six-Miles Limit.

Three motorists were indicted last week for driving faster than six miles an hour on the streets of Dorval, near Montreal, Can. This is the beginning of a strenuous period for the Canadian enthusiasts, as the new law has just gone into effect.

MISSES POTTER ON THE BEACH

Miss Emily Beats Miss Dorothea and Mere Man's Flights are of Minor Interest.

Although twice disappointed by the capricious whims of motorists' sworn enemy, Jupiter Pluvius, members of the Long Beach Country Club were permitted to run their race meet on the Long Island stretch of sand which bears that name on Saturday last, 4th inst. Among the contenders for the honors were fair chauffeuse members of the summer colony, and they furnished plenty of fun for the crowd of spectators who witnessed the contests.

Miss Emily Potter, of Westchester, who drove one of the several cars that were stuck in the soft sand two weeks ago, was very careful this time and fought shy of the soft spots on the beach, but her sister was not so chary. After finishing second in the women's race, Miss Potter ran along the beach until her car ran into a gully from which it could not be moved until a horse was brought into requisition. All the races except the contest for women were run as time trials as the hardened strip of sand is not wide enough to allow more than one machine upon it at a time. The distance was over a measured mile.

The women's race was a half-mile handicap, in which Mrs. Peter Smith, 12 horsepower Franklin, had the limit allowance of 20 seconds. Miss Dorothea Potter, 26-28 horsepower Olds, had 8 seconds' handicap, and Miss Emily Potter, in a 30 horsepower Peerless, was on scratch. The "honor lady" won by about twenty yards in 52⅕ seconds, Miss Dorothea finishing second.

The most exciting event, if any of them are allowed that distinction, was the last—for all stock cars selling for more than $2,500. In this Ralph Mongini, at the wheel of a 40-45 horsepower Matheson, won the best earned victory of the afternoon, and set up the fastest time, the timers clocking him at 1 minute 29 seconds. Jack Rutherford, 30 horsepower Peerless, was second in 1:34⅕, and E. R. Strong, 40-45 horsepower Pierce, finished third in 1:49. The summaries:

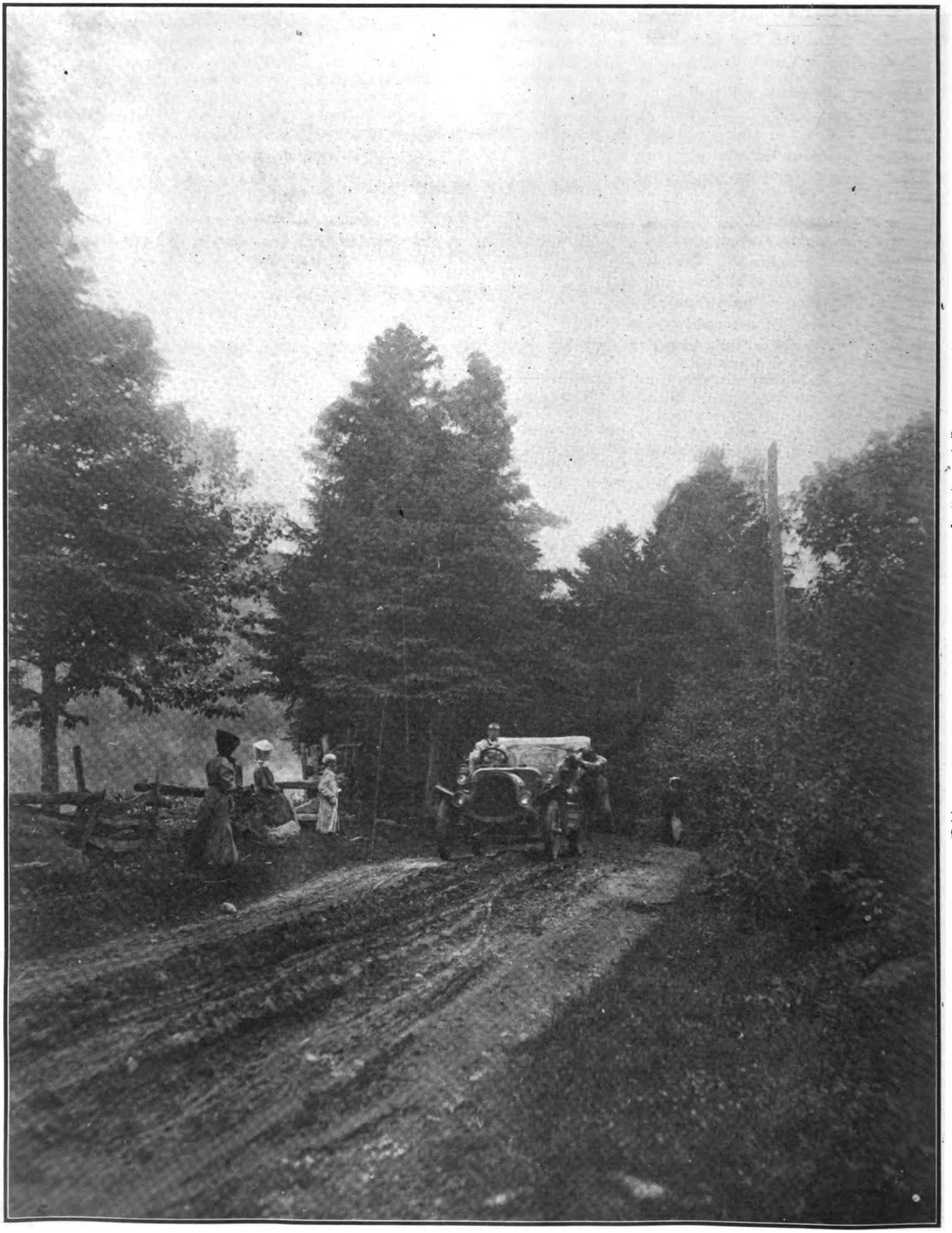
Half-mile handicap, for ladies—Won by Miss Emily Potter, 30 h. p. Peerless (scratch); second, Miss Dorothea Potter, 26-28 h. p. Olds (0:08); third, Mrs. Peter Smith, 12 h. p. Franklin (0:20). Time, 0:52⅕.

One-mile, for single cylinder machines—Walkover for Stanley Mott, 8 h. p. Olds. Time, 2:40.

One-mile for cars listing under $2,500—Walkover for E. A. Hudson, 26-28 h. p. Olds. Time, 2:04.

One mile for cars listing over $2,500—Won by Ralph Mongini, 40-45 h. p. Matheson; second, Jack Rutherford, 30 h. p. Peerless; third, E. R. Strong, 40-45 h. p. Pierce. Times, 1:29, 1:34⅕ and 1:49.

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WHEN HORSE POWER FAILS

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GLIDDEN'S NEXT TOUR

Tourist Davis Outlines Cup Giver's Idea—Will Draw for Prize at Dinner.

Every other man and a few of the women who participated in the Glidden touring contest have found their way into print since they returned to their homes, but save in one instance, nothing that they said, or are credited with saying, adds much to the sum total of intelligence. The exception is W. L. Davis, one of the few private owners who entered the lists and who drove a Pope-Hartford. What Mr. Davis says is instructive because it gives Mr. Glidden's idea of how the next contest for his trophy, or at any rate how a touring contest for pleasure should be conducted, the idea, incidentally, being duly approved by Mrs. Glidden! Briefly, the idea is to finish the tour with a dinner at which the trophy will be awarded on a button-button-who-has-the-button basis.

"There will never be another Glidden tour like the last one," said Mr. Davis, "for Mr. Glidden was as disappointed as any one. The tour was anything but a pleasure ride and it resolved itself into a race between manufacturers in which all kinds of sharp tricks were practiced. This was not Mr. Glidden's idea at all. I talked with Mr. Glidden several times about plans for a tour that would be more enjoyable and he said he believed my ideas were sound. He intends another year to give a tour de luxe. There will be no rivalry between manufacturers, no racing for the controls, no turning out to let others go by, no jumping of rates by hotel keepers, but a tour in which a man can take his wife and make a leisurely run without breakneck speed. Mrs. Glidden is much sought after in society circles and the proposed tour for next year is approved by her!

"Mr. Glidden said he thought I had the right idea about a tour. He intends to have a dinner at the close of the tour and every one who takes part in the tour will have a number that will be placed under his plate at the dinner table. A number will be drawn and the lucky one will get the prize. This will do away with much of the disagreeable features which characterized the recent trip. Notwithstanding the hardships there were many pleasant features connected with the tour. The hotels managed by the Canadian Pacific did not jack up the prices and in the White Mountains we were treated finely. Anderson and Price did everything possible for our comfort. From what we had been up against we were expecting to be soaked, but were surprised when we learned that there was a 25 per cent. discount for automobilists. The managers of some of the hotels we stopped at in New York State won't have to do anything more for the rest of their lives. All in all, the trip was a great mixture of enjoyment and hardship. Counselor Delehanty, who was me part of the time, said he would not miss it for $10,000, and he would not go on another trip for $10,000. It was like being pinched by a pretty girl—you don't know whether you want to have her stop or not."

Mr. Davis, who appears to possess the instincts of the real tourist, tells also how he came to incur such heavy penalties in the contest. When he awoke to the fact that it was chiefly a trade competition, he lost interest in the trophy and sought to extract some real pleasure from the journey. At one point he turned out into a sand heap to allow a friend to pass him. When he found himself stuck in the sand he and his guests left the car where it was and repaired to a farm house a mile away and got three quarts of milk and two dozen eggs. They dropped the eggs into the milk and squatted themselves on the lawn. For every minute spent this way Davis was penalized one point, so that when he joined the caravan he had a few hundred points chalked up against him.

Parts that Require Attention.

Just because certain parts of the car are out of sight they should not be allowed to be out of mind simply for the reason that they continue to do their work uncomplainingly. Nuts and pins do not loosen and fall out all of a sudden; their defection is the result of continued vibration as a rule and they start and turn or loosen very slowly, probably taking as much as a fortnight's constant running in some cases to get to a point where they finally drop off and cause trouble. An occasional tour of inspection with a wrench, tightening up those parts that are out of sight except when gazing upward from a point of vantage flat on the back, will do much to avert an involuntary stoppage on this account. This is particularly true of the cardan shaft. It is seldom looked at except when the body happens to be removed for other repairs, but the occasions on which it has been at fault are sufficiently numerous to make it a wise plan to feel its joints from time to time and see if they have developed too much play. Also see whether the shaft is still in line or if it has sprung just enough so that with a few months' wear it will ruin the bevel pinions.

"The Past" and "The Future."

Progress personified appears to be one of the roles that the automobile is called upon to play upon every appropriate occasion regardless of whether those who thus employ it have any connection with the business of building cars, direct or otherwise. This was the case in a street parade of a German society held in Berlin recently, in which "The Past" was represented by an ancient hack and its motive power and "The Future" by a spick and span motor cab almost buried in flowers.

WAIL FROM DEMERARA

Arrival of a Motor Bicycle Brings Spasms to "Ye Scribe"—List to his Cry.

Under the caption of "Georgetown's Peril" the editor of probably the only newspaper that the entire island of Demerara boasts has worked himself into a fine frenzy, all because one of the residents of Georgetown has had the temerity to import a motor bicycle. As a warning of what must surely follow the introduction of the automobile into new fields, it is certainly instructive, not to add amusing. He says:

"This happy colony has hitherto been immune from motoritis and golf fever, allied scourges that have devastated the civilized world of late years, but the germ (this is the motorcycle referred to rating 1½ horsepower) is here—has been recklessly imported and we fear the result." What would happen if an epidemic of Asiatic cholera, the plague or a similar misfortune should descend upon the island over night is mild by comparison with the vision that the editor pictures. After painting a vivid picture of life in England—which to every colonial is "home" whether he has ever been there or not, since the advent of the automobile in numbers has made it unsafe to venture from one's doorstep, he goes on to say:

"It is difficult for an untravelled resident of Georgetown to realize the change that has come over town and country since the motor car, like the jigger worm and the sleeping sickness, began its desolating career. The rural lanes of England, to take only one instance—the haunt aforetime of bucolic lovers, valetudinarian town-dwellers, and ancient dames whose delight it was to show themselves in 'pony-chaises'—are now mere tracks for automobiles. The dust lies heavy on their hedges and the cottages adjoining. Children, compelled to school, tramp cautiously along the ditches, their parents knowing no rest from anxiety until their return. The bicyclist nears every corner with a thrill, and dismounts in trepidation and tremblingly climbs the bank, as the first 'toot-toot' penetrates the tortured air. The records of dozens of crowners' quests tell him that the windy rush of the great car may whirl him from his machine. The old ladies have long since sold their chaises, turned their aged ponies out to perennial grass, and confined their handy man (once a combined groom and coachman) to the kitchen garden. In many a rose-decked window their pale faces may be seen, wistfully scanning the familiar roads they may never drive again.

"People are knocked down in the street and taken to the hospital without ever knowing what struck them. No man attempts to cross a road without an accident insurance policy in his breast-pocket. The somnolent street cur is a thing of the past;

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his bones have long since gone to make electric light in the dust destructor. In Eastbourne, the first town to start a municipal motor 'bus service, the clearance was especially noticeable. For years the dogs have lived in paradise. With fat, furry bellies upturned to the sun, they lay promiscuously in the streets, and all men respected their vested rights. Traffic turned aside from their supine laziness, and pedestrians stepped over them, until, on a day, the motor 'bus arrived. For a few weeks the slaughter was grim and great, and it was a poor driver who failed to kill his dog a day. Passengers would feel a bump and hear a yell, and a satisfied smile would appear on the face of the conductor. Now, it is almost impossible to coax a native Eastbourne canine off the sidewalk."

He then goes on to conjure up a state of society in Demerara in which "no European or Yankee family with an income of over $5,000 a year talks of anything but automobiles and golf. The father is an authority on patterns and prices, the son is a compendium of speed and hill-climbing records, the mother babbles of tonneaux and the differences in their comfort, and the daughters chatter over the latest thing in dust cloaks and veils. Sparking plugs, gears, carburetters, radiators 'honeycomb' and 'gilled,' friction clutches, explosion mixtures, magneto ignition, and all the cant of the industry hold no mysteries to them, but are matters for every-day chit-chat. Speech, originally a vehicle for the interchange of ideas, must be for them 'mechanically driven.' The atmosphere they live in reeks of petrol, and is thick and slab with a technical jargon. From this welter is arising a generation of cranks; and it is against that peril that we would warn Georgetown."

The Car that only "Partly Arrived."

"R. W. Judson is touring about the city in his new touring car with as much enthusiasm as a small boy with a brand new velocipede, but, more correctly speaking, it is the skeleton rather than a touring car," says a Saginaw, Mich., paper.

"The new car was ordered from an American firm and has only partly arrived here. It will have a value of about $3,000 when it is all here, but as yet it looks more like thirty cents. Mr. Judson has covered the front part and engine with a big dry goods box and fastened it down securely with desultory pieces of rope and strings. On top of this he has mounted a carriage seat borrowed from J. J. Amiotte livery. Although no one has to look twice and then some to ascertain what the machine really is or is supposed to be.

"A fishing trip had been planned by Mr. Judson and he simply couldn't wait until all the machine was here, hence the contraption now in use. The serviceability of the machine has been demonstrated thoroughly by a tour to Spring Lake and Montague last Sunday and the rig attracted considerable attention along the road."

GRAPPLING THE DUST EVIL

Further Experiments Abroad that Gave Good Results—The Liquids Employed.

"It is recognized by the highest medical authorities that disease germs are widely scattered by the dust clouds which motor cars place in motion, and that the dust thus circulated is one of the causes of consumption and diseases of the throat and lungs. Merchants' stocks are also damaged. Many protests and demands for relief have been made. A motor commission has held meetings in London, and it is expected that their report will contain comprehensive suggestions upon the use of motor cars, and the convenience, health, and safety of all who use the highways. Dust raising is a nuisance of such magnitude that various civic and official anti-dust experiments have been made, some in this consular district. While the problem has not fully been solved, the result of some of these experiments may prove of value to public authorities in America who are confronted with the same situation." Thus writes Consul John L. Griffith from Liverpool.

"There has been a great deal of discussion in England as to who should defray the expense of keeping the highways in sanitary condition, and it is strongly urged that a considerable portion of the expense should be borne by those who necessitate the outlay.

"Quite satisfactory results have been secured in Liverpool through the use of oil sprinkled upon macadam roadways. The surface having the cleanest and whitest appearance was that coated with creosote oil mixed with rosin, while that covered with creosote oil mixed with tallow had the least odor. The surface covered with ordinary petroleum was the first to show the dust. The next in order was a mixture of creosote oil with rosin and tallow, and then the hot creosote oil alone. Creosote oil mixed with pitch, cold creosote oil, and hot creosote oil mixed with a small quantity of pitch gave good results, but the latter gave a bad appearance. The heavy black oil (coal-tar waste oil) lasted slightly longer than the creosote oil and was much cheaper. The Texas crude petroleum gave the most lasting results, and portions of the road heavily coated with this oil showed a somewhat glazed surface formed of oil and dust.

"From the standpoint of the wear and tear of the road surface, the oiling on the whole has proved advantageous; the wear appears to be less; the surface of the road dries up more quickly after rain; and the number of loose stones picked up has been reduced. The first sprinkling kept the surface in good order for three weeks, at the end of which time it was thought advisable to recover this area. The good effects of the oil on the surface after a second coating had been applied had not entirely disappeared after the lapse of five weeks. The cost varied from one-half cent to one cent per superficial yard. Some complaint was made as to the smell of the oil, especially the creosote, but against this it was claimed that as long as the smell remained flies practically disappeared from premises adjoining the roads. Oiling wood pavements in Liverpool was done in the same manner and the dust satisfactorily kept down, a result not obtained even by watering four times a day, and the surface of the road was maintained in good condition during dry weather without gravel. It became somewhat slippery during a rainfall, and to avoid this it was found necessary to sprinkle a little gravel on the roadway.

"The district council of Norwich has also been experimenting with the dust-laying problem, sprinkling with a calcium-chloride solution. This is made by dissolving one hundredweight of calcium chloride in 100 gallons of water. The chloride is sold at $7.29 per ton at the chemical works. The experiment was tried for fourteen days over three lengths of main road. The first cost only $4.44, as against $20.33; and the third $8.83, against $40.55. The liquid appeared to change the gravity of the dust particles, preventing them from being blown about by either wind or motor cars. The roadway seemed to be bound, and in dry weather had a good surface. The liquid absorbed the moisture, and each night an amount of moisture was gained, which prolonged the effect of the treatment. This reviving influence was apparent for fully three weeks after the expiration of the treatment. During wet weather there was a tendency for the surface to work off in layers, but it quickly dried and set hard. The conditions vary so greatly it is preferable, perhaps, that the method of application should be determined by experiments in each particular district, but the result of the treatment of roads in Norwich has been most satisfactory to the surveyor of the council."

To Build Automobile Highways.

The Castle Crag and McCloud River Automobile Road Company has been incorporated in California, with a capital stock of $25,000, of which $5,000 has been paid in.

The company has been organized to construct paths and roads for the use of automobiles, bicycles and all kinds of horseless vehicles. The first road to be built will be from the junction of Soda creek and the Sacramento river, in Shasta county to Warm Castle Springs, in Siskiyou county, a distance of fifteen miles. The directors are: A. D. Shepard, Thomas H. Williams, Clarence P. Waterhouse, Charles S. Wheeler, all of San Francisco, and S. O. Johnson, of McCloud.

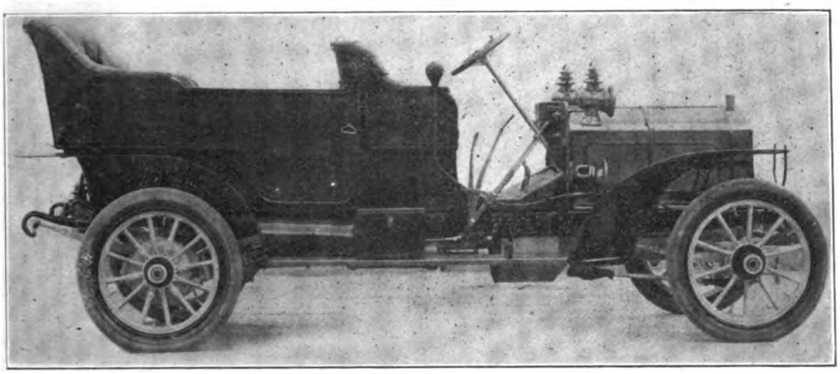
Germany's production of alcohol for the month of March amounted to something over four million gallons, of which about twenty-seven per cent. was denatured, and, therefore, free from taxation.

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THE IMPROVED PACKARD

Has More Power and a Number of Detailed Refinements—What they are.

"Packard 30" is the official title of the car that will represent the Packard family during 1907—or, as a matter of fact, from now on, and as in the past, it will continue to be a family of one, the makers devoting their entire attention to this model. It is the successor of "Packard 24" and like the latter, it derives its name from the horse-



THE 1907 PACKARD

power rating which is, of course, nominal, and does not represent the actual brake horsepower that the engine is capable of developing. Apart from the increase in power and consequent structural enlargement that has been necessary on that account, the new Packard differs from its immediate predecessor only in that refinement of detail that the designer now finds himself confined to where improvements are concerned.

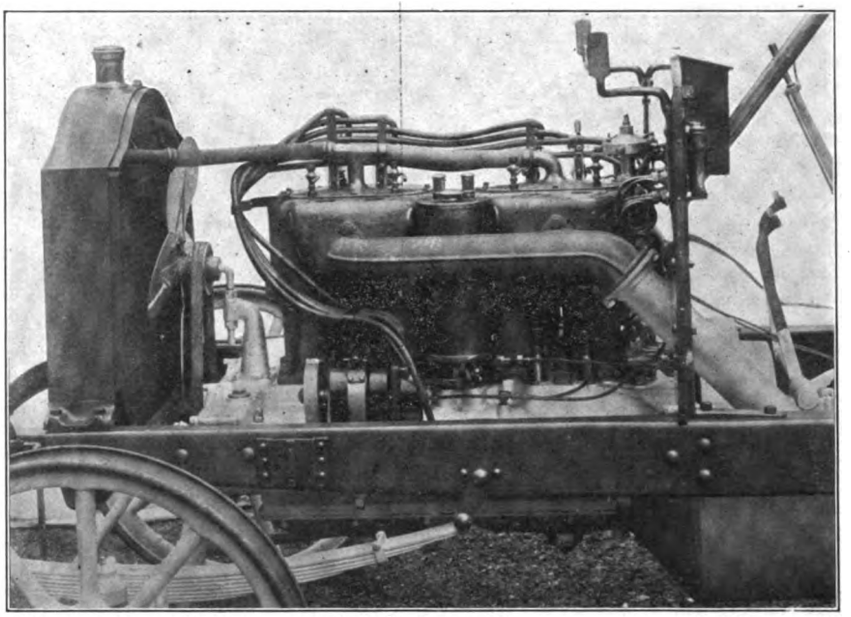
The running gear is practically identical with that of the present year's model except for the increased wheel base necessary to accommodate the larger motor. It now totals 121¾ inches, the additional length, however, being entirely in front of the dash, making the bonnet longer but leaving the frame in all other respects the same as formerly. There has been no change in the suspension, four semi-elliptic springs of 40-inch length forward and 56-inch rear with clips to control the action of the leaves being employed. The tubular front axle has been increased in diameter by ¼-inch, now measuring 2½ inches, while the central depression of the axle itself has been slightly reduced.

The design of the steering knuckles has not been altered but they have also been slightly increased in size. They are heavy forgings fitted with self-seating and adjusting ball bearings and are placed with the jaw above the centre of the axle itself in order to permit of low suspension. Hess-Bright ball bearings have been substituted for the roller bearings formerly used in the front wheels, the latter being 34 inches in diameter and shod with 4-inch tires, 4½-inch tires being fitted on the rear wheels. The steering column has been given a slightly increased inclination and all steering connections are fitted with oil cups.

In the motor itself the same general design has been adhered to throughout, though it is here also that the greatest amount of detailed improvement is concentrated. The bore has been increased to 5 inches while the stroke remains the same as formerly, 5½ inches. Imported twin cylinder castings are employed, those for the pistons and the rings also being made in France and shipped here in the rough. The opposite disposition of the valves is retained, the valves themselves and the pockets being increased in size as well as somewhat changed in shape. The valve chambers have been raised and are tapered at their lower ends to save weight. This construction has eliminated the familiar raised dome over the valves which characterized the Packard 24, the entire top of the cylinders and valve chambers now being flat.

The same grade of high carbon open hearth, oil-tempered steel is employed for the crank shaft, the size of the latter having been increased in proportion. All of the valve and timing gears, together with those employed for running the magneto and water pump, have been placed in a separate oil-tight compartment forming an integral part of the engine base. Apart from the few exceptions noted, the same features of design and construction are present in the new engine as in the old, no changes having been found necessary in the cooling system or in the carburation. The special Packard carburetter as well as the Packard system of governing by means of a water and air-controlled diaphragm acting on the throttle that has proved so effective on the 24 horsepower model being both retained intact.

Although the duplicate form of ignition by means of an Eisemann high tension magneto and set of storage cells for starting and as a reserve has been retained without alteration, the position of the magneto has been changed from its location above the engine base to the lower right hand corner of the crank case, the drive also being changed from sprocket and chain to enclosed gears. The single non-vibrating coil for the magneto side of the ignition and the tremble coil of the accumulator side are now combined in a single unit on the dash, and the hand switch for throwing over from one to the other is also incorporated in the same case. The remainder of the ignition system is the same for both sources of current and is continued without change, the latter being likewise true of the lubrication.



THE PACKARD ENGINE

The clutch of the familiar Packard internal expanding type has been enlarged to provide for the increase in power, now measuring 15 1-16 inches in diameter, but with the same width of face as formerly. The remainder of the transmission is identical with that of the 24 horsepower model with the exception of a new form of fastener in

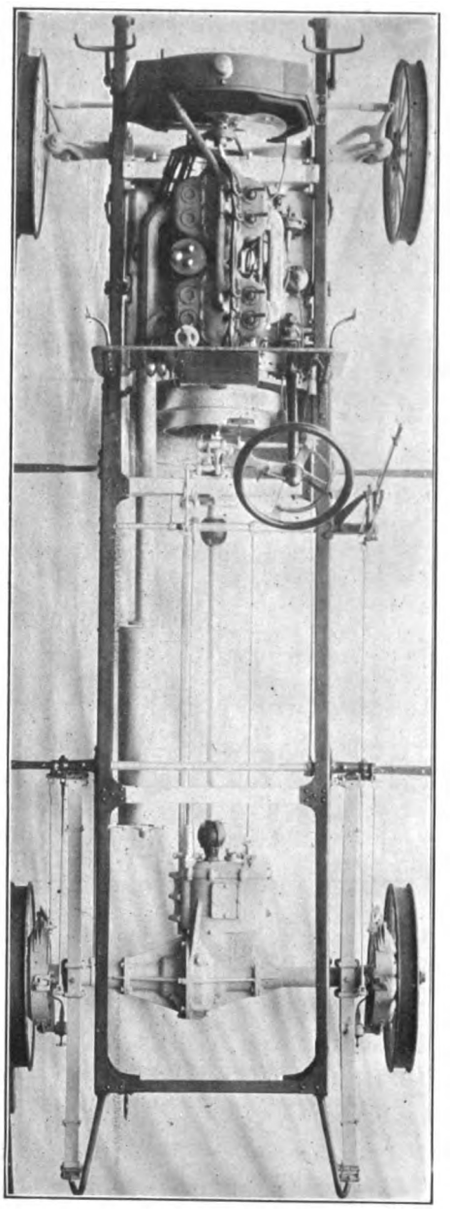
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one of the main shaft ball bearings, and the attachment by pressing and riveting of the rear axle tube to the webbed flanges which constitute the transmission housing, these flanges formerly having been brazed in place.

A slightly greater overhang has been given the tonneau of the touring style of body, the extra length making it extremely roomy and comfortable. The back seat is also a few inches lower than before and the rear seat has been widened, the body design having been altered somewhat to obtain more of the now prevalent straight line effect. The weight of touring type with regular equipment is 2,900 pounds and the price $4,200. It is also made as a runabout, in this case the wheel base being somewhat shorter, the motor and radiator being placed further back on the frame and the length of bonnet being increased. The steering column is also raked considerably more and the driver's seat set lower and further back. In this way a harmonious and effective outline is produced and results that are not to be had by simply placing a runabout body on a standard chassis. A limousine completes the range of models turned out.

Besides being among the first of the new comers for next year, the "Packard 30" is also one of the most thoroughly tested cars that has ever been placed on the market. Its preliminary trials date back to early in the season and since then it has been subjected to gruelling tests such as are seldom thought necessary to show the merits of a car. It has been sent on several return trips from Detroit to Chicago, in one instance the distance of more than 600 miles being covered in less than a day. And but a week ago, with President Joy of the Packard Co. at the wheel, it was driven from Detroit to New York and return, while the car's designer, Russell Huff, has followed Mr. Joy over the same route.

Huff reached New York on Monday night last, 6th inst., having left Detroit the previous Saturday night. He traveled via the Canadian route and found enough mud and roughness to fully satisfy all requirements. Nevertheless he completed the 778 miles in three days, the daily runs being, respectively, 298, 202 and 289 miles, the last day's ride being in the rain. There was no tire trouble on the entire trip but one rear tire was worn down to the last layer of fabric. An interesting feature of the run relating to its original purpose of testing was that the whole distance was covered without a radiator fan in order to ascertain the efficiency of the water circulating system under trying conditions. The accomplishment was noteworthy on account of the continuous running through heavy stretches, which gave the engines hard work without the natural draft of high car speed. Another point in the testing was that this car was fitted with a pressure gasolene feed, the gasolene tank on this car being hung lower down than on the regular touring car model. The system gave no trouble and this morning, after the car had been standing twelve hours in the garage, the gauge still showed the normal running pressure. This was but one of the



THE PACKARD 30 CHASSIS

things revealed by an examination of the engine and its accessories the day after, none of them showing any need of adjustment.

Showing the Need of Lubrication.

Wherever there is motion there is need of lubrication. This fact is so plain that it does not seem as if any one could fail to understand it, yet many motorists do. Here is a case that illustrates the point: The shackle or link joining the dumb. iron and near-side spring at the back of a certain car had fractured, and on the repairer trying to remove the broken pieces, it was found that they were set solid on their pivots with rust—so much so that a blow lamp and cold chisel and heavy hammer had to be used in order to remove them. Evidently this was the cause of the breakage, as the shackles could not give up to the movement of the spring. A drop of oil now and then would have prevented all the trouble.

Influence of Climate on Metals.

It still remains a fact that evidence is not lacking which would indicate that steel made twenty-five years ago, and of which the composition was not so carefully considered as of the steels of to-day, did withstand the influences of climate better than modern steels. That steel is always more quickly corroded than iron was firmly believed by many for a long time, and test after test could be adduced by the advocates of iron to prove the correctness of their beliefs. On the other hand, the steel boiler, the corrosion of which was so much dreaded, is now universally employed, and corrosion has not proved in practice to be the awful thing anticipated.

Toying with High Tension Wires.

Keep your fingers away from the spark plugs or other terminals of the high tension end of the ignition system while the engine is running, is a good piece of advice that will save an unpleasant minute or two if nothing worse. While the shock produced by the average induction coil used for ignition purposes is absolutely harmless, the suddenness and severity of the jolt are sufficient to unnerve some people totally for several minutes and the interim between the time of finding out that the innocent looking brass nut was "alive" and a return to a normal condition of feeling is only less uncomfortable than the shock itself.

Spacing of Gear Teeth.

The severe requirements imposed upon automobile gearing have caused some manufacturers to make the teeth of modified form, using 20 deg. involute teeth of about three-fourths the height of a standard tooth. For example, a 6-8 pitch is considerably used, the dedendum and addendum circles being spaced in ⅛-inch from the pitch line instead of 1/6-inch, as would be the case in a standard gear. In this nomenclature, the second figure gives the spacing of the addendum and dedendum circles, and the first the diametral pitch.

Abuse of the Engine.

Racing the engine is one of the unnecessary abuses to which many cars are subjected by careless or ignorant drivers. The practice of withdrawing the clutch without throttling or retarding the spark; of letting the car stand with the motor buzzing round till the car is a vibrating blur; of using the low gear with the motor turning over at top speed when a higher gear could be used with a little careful handling—these things take more out of a car than many miles of ordinary road work, waste fuel, cause unpleasant racket and are of no use any way.

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BALD JOINS OLDFIELD TROUPE

They Show at Washington and new Star Plays Strong Part—Big Crowd Attends.

E. C. Bald has ceased the prosaic task of testing out Columbia cars on the road and returned to the limelight of the track. He has joined the retinue of B. Oldfield & Co., and as Bald and Oldfield were old-time rivals in the heyday of the bicycle, when they came together for the first time in Bennings track, at Washington, D. C., on Saturday, the 4th inst., every heat was a "duel to the death." In fact, Oldfield cut one heat out of the three-mile event so close it was freely charged that Bald beat him by inches, but it was nevertheless declared a dead heat and a run-off of one mile was had to decide it, which Oldfield won by half a length. The meet had been well advertised, as it was the first of the season under the auspices of the Washington Automobile Racing Association with sanction of the A. A. A., and drew a crowd of 7,000 people. Some good racing and well timer finishes served to give them their money's worth of excitement, even if they did not catch a glimpse of that famous "purse of gold" which now figures in all the Oldfieldian race meets.

The match between Bald and Oldfield was, of course, the drawing card, and was advertised as "a great national sweepstakes for a purse of $2,000 in gold, with a $500 bonus if the record were broken." The getaway of the first heat was a flying start and Oldfield in the Green Dragon, and Bald in his steamer, crossed the line like a flash, but they had hardly straightened out in the backstretch before it was seen that Bald was in trouble. He came to a full stop and Oldfield slowed down and waited for him, finally going back to the judge's stand and winning the good opinion of the crowd by calling the heat off instead of claiming it as a victory.

Repairs were soon effected and a second start made, this time standing. Oldfield was a little careless in getting away and Bald's steamer responded more quickly to the throttle than the gasolene machine, so that he had stolen three lengths before both cars were well under way. Bald hugged the rail all the way while Oldfield kept the center of the straight and went wide at the turns as is his custom. Bald won by less than a length in 4.05.

In the next heat Oldfield was a little more careful in his judgement of pace. He hung back by a foot at the end of the first mile and took the second by a scant yard. The crowd of 7,000 people was quite excited by this time and stood up to catch the first glimpse of the machines as they emerged from the dust cloud at the turn into the home stretch. Oldfield aimed to make it a hair-raising finish, but cut things too fine, as Bald beat him by inches in 4.10. It was declared a dead heat and run off as already mentioned. The final was the slowest of the three, both taking their time at the turns and in the backstretch, Oldfield's well trained judgement of pace bringing him in a foot ahead in 4.13.

Oldfield's final appearance was in an exhibition mile against his record of 53 seconds. Owing to the softness of the dust covered and unbanked track the performance was somewhat spectacular, as the car skidded badly at the turns throwing clouds of dirt into the air, and effect was heighened by a grand stand spurt at the finish but the result was nowhere in sight of the record, the time being 1:09.

The amateur events were of the usual tame order and the speed achieved would just have landed the drivers in a police court when timed by accurate stop watches. Practically the only event of interest was the three-mile novelty race for fully equipped touring cars, the engines being started and the passengers taking their seats at the starter's shot, coming to a full stop at the end of one mile to discharge the passengers and then finishing. C. W. Frank in a 28 horsepower Columbia, had things all his own way, finishing in 6:29⅗, none of the others being in the hunt at all.

An event that was not on the program promised excitement but fell rather flat. It was a informal five-mile match race between Howard Gill, in a Stanley steamer, and McCormick, in a 50 horsepower Thomas, both drivers being out for blood. Gill teased McCormick the whole distance, just going fast enough to keep ahead of him—so slowly, in fact, that it looked as if he could have lapped his opponent without trying very hard, and finishing in the poor time of 7:12.

The summaries follow:

Three miles for motorcycles—Won by James Mangold, 2½ horsepower Indian Time, 5 minutes.

Three miles for gasolene cars listing at $1,000 or less—Won by Riddle, 10 horsepower Maxwell; second, Charles Goldwaite, 10 horsepower Maxwell. Time, 5:21.

Three miles for fully equipped touring cars carrying three passengers—Won by C. W. Frank, 28 horsepower Columbia; second, Dorset. Time, 6:29⅗.

Five miles for fully equipped touring cars listing at $2,000 or over—Won by C. W. Frank, 28 horsepower Columbia; second, Stanley Zell; third, L. Walker. Time, 8:43.

Three mile National Sweepstakes for $2,000 in cash, $500 to be added if record were broken—First heat won by Eddie Bald. Time, 4:05; second heat was declared a dead heat, time, 4:10, a run-off one mile to decide it, was won by Oldfield in 1:25⅕. Final heat won by Oldfield. Time, 4:18.

Exhibition mile trial against world's record of 53 seconds for a circular track by Barney Oldfield. Time, 1:09⅗.

Mile trial against same record by Howard Gill, of Baltimore, in Stanley steamer. Time, 1.10.

Match race, five miles—Won by Howard Gill, Stanley steamer; second, Mc Cormick, 50 horsepower Thomas. Time, 7:12.

Odd Loophole in Massachusetts Law.

Massachusetts "motorphobes" and police authorities are much upset by a ruling made last week by Judge John W. Berry, in the Lynn Police Court, which has, however, led to a decision to arrest alleged offenders without seeking to establish their identity. The ruling grew out of the arrest of Arthur M. Stanley, who appeared before the court charged with overspeeding an automobile, and who was successful in having the case quashed through the efforts of Henry R. Mayo, who appeared as attorney.

When the case was called, Attorney Mayo presented a motion to quash the complaint, on the ground that his client was immune from criminal prosecution, and he cited section 7 of the automobile laws of 1906, as conveying authority for his request.

Section 7. Any person owning or controlling a motor vehicle, who, when requested by a police officer, shall refuse or neglect to give any information within his power to give which may lead to the identification or apprehension of the person who was driving such motor vehicle on the occasion inquired about, shall be punished by a fine of not less than twenty-five, nor more than one hundred dollars.

Provided, that no evidence obtained under the provisions of this section shall be used in any criminal proceeding against the person furnishing the same.

Judge Berry, at first, refused to accept the motion to quash, on the ground that it was not applicable, and he ruled that Stanley was guilty of overspeeding and expressed a determination to impose a fine of $10.

Continuing his argument, Attorney Mayo said that his client, who was operating the automobile owned by Vice-President E. W. Rice, of the General Electric Company, and bearing a registration number of that gentleman, was stopped by one of the Lynn inspectors, asked his name and address, and to every question a prompt response was made. In consequence of the fact, that Stanley conveyed to the police information which led to his identity, which could not have otherwise been secured by the police, unless from the owner of the car, it was contended that such evidence could not be used in criminal proceedings against Stanley. A singular fact was discovered, which amounted practically to this: If Stanley refused to disclose his identity, he was subject to a fine; if he did disclose his identity he could not be punished criminally, as he then had contributed evidence which the police were using against him in the criminal proceedings.

After much discussion between the court and counsel, during which it was remarked by Judge Berry that the law was a most queer conception, Stanley's case was filed.

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CAUSES OF MISFIRING

Contact Breaker a Fruitful Source—How Trouble Occurs and may be Remedied.

It will be found with experience that the contact breaker is a far commoner cause of irregular firing than is generally supposed to be the case by the average motorist. Weak batteries, poor plugs, poor connections or short circuits are also common causes, but a faulty timer will often simulate the symptoms of one or all of these. The firing may be weak, and it will be put down to the battery, or again, it may be extremely irregular and this will usually be ascribed to a partly broken wire or a poor connection, or it may cease altogether momentarily and resume without being touched and this will look like an intermittent short-circuit, whereas the timer may be the only thing at fault. Constant wear, particularly in the type employing springs to press the contact maker against the periphery of the case, tends to make the latter lumpy and oval and also to separate the two. This permits the entrance of the oil or grease used as a lubricant and acts as an effective insulator.

This is an evil that could be laid at the door of the timer made of soft bronze or brass so frequently that radical changes were brought about in the character of the materials used for this essential. Some makers took to steel, while others employed a harder grade of bronze besides greatly altering the manner of making contact. The bevel gear drive that has become so commonly adopted for the contact make during the past two years, will prove a source of trouble if the pinions wear, and more if the shaft itself gets out of line, but neither of these can be put down as an ordinary ill. To correct any of the every-day failures to work there is nothing to equal an occasional cleaning and for this purpose there are few things superior to gasolene. The contact maker should be entirely dismantled and every trace of powdered metal thoroughly removed as it is the latter that is most apt to cause trouble and there is no way of avoiding its presence in view of the fact that the friction between the surfaces of the wiper and the ring are bound to produce it with anything but the very hardest of metal.

See whether the fibre ring has become warped or out of true from being wet with oil so constantly, as if it is no longer concentric with the case trouble in the shape of irregular firing is certain to follow. The same is true if the fibre has softened sufficient to allow any considerable amount of the metallic dust to become embedded in it and in the latter instance, a replacement is the only effective remedy. A simple method of testing the efficiency of the contact maker when the ignition appears to account for the sluggish running of the car, is to press the finger against the wiper and note whether the engine picks up or not. Where the contact maker is of the fixed blade and revolving disc type, a slight resetting of the blade will often bring about a wonderful improvement. It takes the average driver some time to learn to look to the contact breaker oftener when the motor does not perform as it should, and while it is by no means the source of all trouble where the ignition is concerned, it contributes to it very largely and should never be overlooked when the spark is at fault.

Mexico's American Postal Wagon.

While the Washington authorities have little more than fumbled with small motor vehicles as a means of improving the postal service, the Mexican government has not hesitated to place orders for just such big wagons as are drawn by horses in the larger cities in this country. The occompanying illustration shows the first of them—one made by the Knox Motor Truck Co., Springfield, Mass., which has just been shipped to Mexico. It is equipped with a double horizontal, water-cooled motor of 24 horsepower, with spur gear transmission direct from motor to rear axle. Its wheel base is 9½ feet, its tread is 58 inches and the 36-inch wheels are shod with 6linch solid rubber tires.



Now the Gasolene Fore Carriage.

There was a time when if the predictions of a certain inventor were fulfilled, everyone who owned a carriage that boasted of four wheels could readily convert it into an automobile by merely discarding the forward pair and substituting his patent self-contained motive power that ran on two wheels. The motive power was electricity and centered on the pair of wheels were two motors, a storage battery, switches, controllers and steering gear. A few of the hybrid vehicles were actually put into use but soon faded from sight and have since been no more.

Now London is about to be visited with something similar, except that gasoline is to be employed instead of electricity. It is termed the "Pull" car and is being turned out by a company of the same title. As in the case of its predecessor in the electrical field, the entire power plant is centered on the front wheels somewhat similar to a bogie truck. A four cylinder motor rated at 14 horsepower is placed transversely under the seat; the dash forms the fuel tank and the radiator, which is of the alcohol type, is placed immediately in front of it. The wheels are shod with pneumatic tires and run on a tubular axle through which a solid driving axle is inserted, the transmission being by means of a planetary gear giving two speeds and reverse. Three brakes are provided, two of them acting on the transmission while the third is designed to act against the tires of the rear wheels, although it is said that this archaic form is only temporary. In any case, this last brake would have to conform to whatever kind of trailer is tacked on behind the power plant, as this is claimed as one of its greatest advantages.

Of the many adaptations of which this composite vehicle is said to be capable, one in particular is its combination with the body of the standard hansom cab, with its towering solid tired wheels, and a more peculiar looking arrangement could hardly be imagined. Unlike the snake of the Irishman's story, it is easy to see where the automobile's head begins and the hansom's tail leaves off—in fact, it is the startling transformation from one to the other that first arrests the eye and makes the combination one of glaring incongruity. and one that is like an oil and water mixture—it does not go well together.

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HOW MANY CYLINDERS?

Impartial Discussion of the Subject and the Interesting Conclusions Reached.

Only a short time back four cylinders were considered to be about the limit in ordinary practice for nearly all standard motor car work, exceptions, such as six and eight, being regarded more or less as mild freaks, and hardly adapted for the average use, says the Motor Trader. But now the position of the four is more threatened. There have, it is true, always been able advocates for the three-cylinder type. Still the reasons for the initial preference by the majority of the four combination are fairly patent. Working from the natural unit of the double-cylindered engine, the latter appears a straightforward one to manufacture. The cranks being at 180 degrees, the crank shaft can be machined from a flat forging, and in advanced practice with but three main bearings, and the crank pins turned in pairs with but two settings. Then the average engineer often has a leaning for a balanced design on the drawing board, disposing the valves on either side of the cylinder, and four appeals to the old school as a more symetrical whole. But such influences do not go deeply into the matter, and it cannot be said out of place to consider the various points raised by this somewhat vexed question, "How many cylinders?"

As the large majority of multi-cylindered cars are of high power and first-class workmanship, while the simpler type is chiefly represented by smaller and cheaper cars, the lay mind is often unduly influenced by unintentionally making erroneous comparisons. Thus the erstwhile contented owner of an ordinary four-cylindered car of normal power is perchance blessed with the privilege of a trial spin on a six-cylindered car of perhaps twice the power, likely in the pink of condition and driven by an expert. Being vastly impressed with the undoubted difference in running, in his exhiliration he thinks the improvements entirely due to the additional couple of cylinders, forgetting that a high-powered car should, in any case, run considerably smoother than a medium-powered one, because the motor is not so much forced to labor at its full pressure, and, therefore, runs easier, having the load more in hand. Partly to obviate this lack of proportionate comparison it has been proposed to hold a road trial of approximately the same power, but variously cylindered cars. While a good road test is, in general, excellent, it can hardly be seen how a really satisfactory decision, or definite result, could be so gained. Individual driving, workmanship, design, and that spice of all sport, "luck," tell more than number of cylinders in the most official trials.

It should not be forgotten that the addition of cylinders does not imply an equal addition in complication. A double-cylindered engine is by no means doubled in parts and weight, for there are many components and accessories that remain almost unaugmented. The flywheel, two-to-one gearing, governor, commutator, carburetter, throttle, pump, radiator, silencer, etc., etc., are practically as simple on a multi-cylindered car as on the single. But on the other hand, looking at the matter apart from balance, as the number of cylinders is increased, the extra advantage gained in added impulses decreases. Thus, while a couple of cylinders yield double the impulses of one, three give but half as much again as two, a fourth increases uniformity of torque by only one third; and so on in diminishing ratio. While the constant torque delivered by six cylinders is, of course, a desideratum, it is only a gain in the added impulses. That is, there is no marked point of superiority where impulses overlap and merge into continuity, more than when they are augmented above or below that number. In regard to this, some are unconsciously influenced by their knowledge that absence of "dead-point" is such a distinct advantage with a steam engine. But there is a vast difference in the relative conditions, arising from the obvious fact that the ordinary double-ended steam cylinder has only a couple of dead points, whereas the usual single-cylindered gasolene motor is cursed with no less than one-and-half revolutions, not alone dead, but partially negative. But a comparatively even turning movement can be obtained without excessive multplication of cylinders, through the medium of a good-sized flywheel, which need not be unduly heavy if of fair diameter. As a somewhat extreme example, the successful direct driving of dynamos by single-cylindered gas engines may be noted. While much is made by multi-cylindered enthusiasts of the gain in even pulling of the six, some also claim that they could have one cylinder missing out of the six practically without knowing it.

The multiplication of cylinders does not give a proportionally uniform increase in efficiency. Commencing with the simple, and not to be despised, single-cylinder variety. There the reciprocating piston and connecting rod have to be balanced with revolving weights, and very high efficiency can be obtained with well calculated and proportioned balance weights. This type has no unbalanced couple, the impulses are equally spaced, and also concentrated, not being spread as in its multi-cylindered offspring.

A couple of cylinders in the ordinary side-by-side type allow of the reciprocating parts automatically balancing one another, but at the cost of unequally divided impulses, and the couple which is created. The piston velocity remains unbalanced. In the more common 90 deg. "V" arrangement an equalized velocity is obtained. It may here be said that this somewhat neglected design is an excellent one, owing to the lines of force being disposed at right angles to one another, instead of being all in the same plane. Again, there is also the horizontal opposed type, in which is obtained much the same balance as in the vertical with the additional advantage of having the impulses evenly spaced. So that both these latter more exceptional forms have an advantage over the widely adopted side-by-side type, which is more compact.

In the addition of another cylinder there is a distinct all-around advance. Three cylinders afford a handy combination of good balance of reciprocating parts, average uniform sum of piston speed, and equally divided impulses; only the couple remaining unbalanced. It might here be mentioned the effects of unbalanced couple are greatly mitigated by a close built crank shaft, that is having a compact engine. Therefore, the practice of casting cylinders in sets is especially advantageous for designs having unbalanced couple.

Four cylinders afford the additional balance of couple, but at the expense of piston acceleration, which is as unbalanced as in the double-cylinder class. This latter point is somewhat an anomaly, in that the addition of a cylinder disarranges one balance, and acounts for the three-cylindered type being almost as even running. Here, again, variation may be made, either by placing the cylinders in couples at an angle of 90 deg., or opposite.

Passing over the uncommercial five we have the six combination, which is practically a double three. We have a combined balance of reciprocating parts, velocities, and couple, with impulses equally divided, and six is the minimum number of cylinders affording this desirable end (apart from the aforementioned five). However, going still on, eight cylinders arranged on the already noted "V" system give still better results. Indeed, this may be said to be in practice an almost perfectly balanced type, and the goal of cylinder multiplication, beyond which there is practically nothing to be gained.

There can be no doubt but that a multi-cranked shaft is a somewhat weak point. Unless excessively heavy there must be a small amount of undesirable give or spring; so much power has to be transmitted to the flywheel through the back crank or cranks. It is here with its comparatively short and simple crank shaft that the "V" type scores part of its excellence. Power for power, the fewer the cylinders the stronger and less fragile will be the various components, such as valves, lifts, etc. But, at the same time, the lighter and reciprocating portions the greater the speed attainable. It is to some extent due to this, as well as the more even turning movement, that the multiplication of cylinders gives a more flexible and responsive drive; so that, while hardly of proportionally increased power at low speeds, as some seem to assert, the power may well be delivered

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more effectively. In the not important matter of cost, the simpler type, of course, has the advantage. That is, for a given sum, within the limits, the fewer the cylinders the better should be the motor. But initial cost is not a prime consideration in many cases. As regards petrol consumption, theoretically, the single cylindered type should prove the most economical; both because there is less internal friction, and a slightly better mixture and combustion can be obtained than when divided into a number of smaller cylinders. But what little advantage there may thus be is largely negatived in ordinary practice, as this type does not answer the throttle so finely, necessitating more declutching, and, further, will not run light as slow. In the matter of weight, pros and cons again nearly balance; for while the simpler construction tends to lightness, it necessitates the cumbrance of a relatively heavier flywheel than is required for a multi-cylindered design.

A somewhat intangible point urged against the three-cylindered motor is that the sequence of impulses running continuously from one end to the other, creates greater vibration than when interrupted by a miss-one-jump, as with the four-cylindered type. But it seems that any excess of vibration would occur when one end cylinder fires immediately after the other end, missing the middle. As the usual "four" fires alternate cylinders as often as adjacent ones, the argument turns in favor of the fewer cylindered combination, especially as in case it is desirable to keep the impulses close together.

To analyze the various pros and cons is by no means easy. There are no hard and fast rules, the sphere of usefulness of one type overlapping that of another, and it is here that individual taste and requirements tell. To commence with the humble "single" there will always be a large field for this simplest of motors. On the "poor man's car" and even on some of the better class two-seaters, it is in its place. Also for the truly rural motor where simplicity is paramount, so that when Farmer Giles helplessly scratches his head and plaintively asks, "How be it the thing don't go?" the answer may be as easy as possible. The double cylinder may be passed over as an intermediate combination, excellent in some of its forms but not so much a standard now as it has been. For the more ambitious runabout, with perhaps a "spider" or its equivalent behind, the usual four-seated car of roomy dimensions and a multitude of commercial vehicles among which may be mentioned the ubiquitious 'bus, the simple, effective three-cylindered type seems to fill the bill well. It provides the maximum of all round efficiency with the minimum of complication.

In fact there seems to be no reason why it should not largely share the work of the at present more generally used four-cylindered type, the sphere of application of which is so similar. When the car-de-luxe is under consideration and cost is not so much an object as absolute smoothness of running, then the six and eight combinations are desirable. Also the six might be judged by some to be suitable for the more moderate car, and perhaps for certain types of 'busses. To sum up, it would seem that the three as a unit, preferably as a single casting, with the six as its multiple, offer perhaps the best combination for all-round general requirements, even as the two and four types have done so well.

One Test of a Car.

Usually automobile "stunting" serves no better purpose than demonstrating how skillfully the driver can manipulate the steering wheel, work the levers and keep his wits about him at the same time, but



"stunts" such as the one depicted below tends to show one phase of the utility of the motor car in climbing up places whose apparent impassibility is not surpassed by the roughness of the surface to be covered. The above photograph depicts C. W. Kelsey "stunting" on the bank of the Hudson, near the Maxwell-Briscoe factory at Tarrytown. According to the driver, the car—one of the regular Maxwell runabouts—climbed the rock covered and underbrush choked eight per cent. incline almost as easily as it would have surmounted the smooth macadamized ordinary hill.

Here's the Convertible Car.

It has remained for a Scotchman to devise what might naturally have been expected of the fertile brain of the Yankee, the combined or rather convertible business and pleasure car. One of those approaches to the "poor man's car" that can be used for business during the day and with fifteen minutes work converted into a pleasure car that differs in no respect from the standard vehicle of that kind. It is the product of Argyll Motors, Lt'd, and when used for business is a light delivery wagon of the usual type. By the removal of four bolts the tonneau can be made to take the place of the delivery wagon body with a few minutes' work.

Curious Facts About Steel.

Some curious facts are published about nickel and carbon steels, says the American Machinist. A sample with 5 per cent. of nickel, 0.60 chrome, and 0.22 of carbon was at maximum softness at 1,000 deg. Fah., when it slowly hardened up to 1,200 deg. Fah., but softened again before 1,300 deg. Fah. was reached. Then a great change occurred, and at 1,400 deg. Fah. the steel became self-hard and cannot easily be machined. At this temperature its elastic limit was 75 tons, and it had an ultimate strength of 104 tons, with a 9 per cent. elongation. The material is very tough, and stands shock well. According to a firm that makes these steels for motor and other purposes, small cracks such as develop and induce rupture in an ordinary carbon steel do not extend in nickel steel. If this is further substantiated it should prove a most valuable property. The weak point about steel always has been that a fine crack would continue steadily to extend until rupture was complete. Further, a too-sharp angle would induce a crack, and for these reasons steel has never totally replaced the best class of iron, such as those of Farnley and other well-recognized Yorkshire brands. These, by the reason of their extensive faggoting were not homogeneous, but were practically a bundle of longitudinally-laid fibres of iron not absolutely welded together, but rather of the nature of a stranded rope, across which a crack would not run as it will across a homogeneous bar of mild steel.

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TROUBLE WITH THE FLOAT

It does not often Occur and the Remedies are not Complex but Rather Delicate.

There is always a "last but not least" class of items that must be taken into consideration when enumerating troubles and the various causes of breakdown, and probably one of the most important that may be said to come under this head is derangement of the carburetter float. Completely encased in its housing it is well protected against damage from the outside and such damage seldom is to be feared. But the float will sometimes go wrong of its own accord, so to speak. Just what this is will depend upon the nature of the float itself though the trouble is usually the same—loss of buoyancy, considerably raising the level of the gasolene which ends in flooding.

Some floats are made of cork, shellacked to render them impervious, others of sheet copper soldered at the joints and still others of cork upon which copper has been electroplated to a sufficient thickness to make this type one that possesses all the advantages and none of the disadvantages of the other two. The shellacked cork will not withstand the action of gasolene indefinitely and through constant immersion even this material becomes loggy and much heavier than it was originally. The process is a slow one and the best remedy is a replacement as cork cracks and warps more or less with age.

The hollow copper float with soldered joints represents the type most generally employed as well as the one that is apt to suffer sudden derangement as even the most thoroughly tested of soldered joints proves at times to be an uncertain quantity. The specific gravity of gasolene being much lower than that of water it is in consequence, a much thinner liquid and will find its way through crevices at a correspondingly greater rate. When through the joint giving way, or any other cause the float springs a leak it will gradually fill with gasolene and sink to the bottom of the float chamber, allowing the latter to flood. This will naturally bring the motor to a halt and a good method of arriving at a correct diagnosis of the case is to apply the nose to the muffler outlet or at the cutout while the machine is being pedalled on the stand.

Even though the motor has persistently refused to fire for some time previous it is just as well to take the precaution of shutting off the current before attempting to get a whiff of the "bouquet du gasolene." If the suspicion of the carburetter being flooded is well founded the odor should not only be very powerful, but signs of the fact that the cylinder is drawing in and ejecting liquid or semi-liquid gasolene will not be wanting. Dismantling the carburetter will then confirm this and the next step is to remedy affairs. Tilt the float in the air until a position is found where its contents begin to reverse operations by leaking out. Getting rid of every drop of gasolene is of course, a condition precedent to making repairs and its slow dripping will probably make this a painfully tedious process.

Nevertheless, it is unwise to attempt to hasten it with the aid of a nail or the end of a file; punching a larger hole will certainly hasten the emptying part, but it will also make it that much more difficult to repair the break. It requires a skilled hand with the soldering copper to stop a small leak with the minimum amount of metal and the less that is used the better, for the balance of the float is apt to be disturbed and need rectifying anyway. If a bungling job is made of it, so much solder will be used, that this, taken with what will be found necessary on the other side of the float to restore the balance, will add overmuch weight to it. If the latter be excessive the carburetter's range of adjustment may not be sufficient to counteract it and the unfortunate will be no better off with the repaired float than he was before the operation was undertaken; in either case, the motor will suffer from flooding.

When the repair is completed the float should be tested in a tin of gasolene, both as to the efficiency of the former as well as to ascertain whether the balance has been distrubed and how much. Unless the float rides perfectly vertical on the liquid it is apt to bind instead of rising and falling as freely as it should when imprisoned in the chamber. The most convenient remedy is to fasten small drops of solder to the opposite side of the upper face of the float and here again it takes a skilled hand to get things just right without a lengthy session of what the Briton is fond of dubbing a "course of trial and error." This must be done in any event as there is absolutely no way of gauging the exact weight required in advance, but a bungler with the soldering iron will make a tiresome job of dropping on "gobs" of the molten metal and wiping them off again.

Backlash in the Steering Gear.

Take up the slightest backlash in the steering gear the moment it becomes apparent. If there is any one part of the car that should receive instant attention the moment it gets out of adjustment it is this part. The driver who constantly uses the car will accustom himself to the looseness of its steering gear and it will not bother him under ordinary circumstances, but the inch or more of play that sooner or later develops may be just sufficient to bring on a bad smash that might have been avoided by a quick turn of the wrist had the wheel responded instantly.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50c. The Motor World Publishing Co., 154 Nassau Street, New York City. * *

WHEN SQUEAKS DEVELOP

The Springs are Usually in Fault—How the Noise May be Stopped.

There are few things that annoy either owner or driver so much as a persistent squeak. Its unceasing monotone, always pitched in the same key, becomes positively nerve-racking to the occupants of the car after a time and the feeling of discomfort is greatly increased by the look of curiosity that its presence draws from every passer-by, even though he be seated behind the most disreputable looking equine. It sometimes proves exceedingly difficult to trace the cause of this sort of entirely unwelcome noise and floods of oil and grease fail to allay it. The fact that it is only in evidence when the car is in motion at a good pace makes it that much more difficult to locate as no amount of running the engine with the car standing produces it, nor does running the car so slowly that an inspection may be carried on by walking alongside help to detect it.

The foregoing is a pretty accurate diagnosis of squeaking springs for in the opinion of some drivers the latter form a part of the machine that does not require any lubrication. But at the speed at which the average car is driven over even indifferent roads, the amount of movement between the leaves of the springs and at the pivots is surprising, and as at times they spread apart considerably there is ample opportunity for the entrance of dirt and water. Unless taken in time the rusting that follows is bound to produce a squeak sooner or later and when it does come as the result of such neglect the remedy is apt to be a more troublesome undertaking than if the stitch had been taken in time. This, of course, consists of giving them an occasional greasing and though it involves more or less trouble, it is one that well repays the effort expended in the shape of increased comfort and ease of running.

The car should be jacked up by placing the jacks under the body instead of under the axles, as usual, in order to take the weight off the springs. The leaves of the latter can then be separated sufficiently by driving a thin wedge in at the ends or side, as much grease as is necessary to cover the surfaces being applied with a flat blade such as that of a table knife. The pivots and shackles should also be greased if it is not too much trouble to take them out. Otherwise considerable heavy oil should be poured on each end of the pivot protruding from the socket which will insure that at least some of it will find its way to the proper place. A better scheme than pouring oil over them, catching it in a pan and repeating the process, is to immerse the joint in oil by tying a tin can or other convenient receptacle filled with oil on the joint wherever this is possible.

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It is essential that all surplus oil should be wiped off, not alone immediately after the operation, but from time to time afterward as it oozes out under the movement of the car. The same is true of the springs themselves to a greater extent. The moment the jacks are removed and the weight of the car comes down on the springs again a large part of the grease applied will be squeezed out. All this should be carefully wiped off and the operation should be repeated as soon as the car has been run a short distance as a great deal more will have been forced out. Unless this is removed it will become the means of introducing dirt and grit between the leaves of the springs. The lubrication of this part of the car has been overlooked almost entirely until within a very short time, but the improvements now being made in this direction will soon obviate the necessity of makeshift methods of introducing oil or grease in a place where it is needed far more than the average man has any idea of.

Encouraging the Motor 'Bus.

Recent developments in Italy point to an extensive spread of the application of motor traction to the work of regular transportation, both for passenger and freight traffic. Within a comparatively short time, a syndicate has been projected which is understood to have a liberal financial backing, and to be under experienced management. The intent of this company is to organize lines in various parts of the country as occasion presents itself, taking advantage of the government subsidies which have been allowed, and by means of the flexibility and economy of the automobile, occupying territories which are too barren for the support of railroad and street car lines.

Although there are numerous lines of railway and street car traffic in the upper portions of Italy, they are of comparative rarity in the South. There, the scarcity of travellers has made their exploiting burdensome, which, of course, has discouraged the construction of new lines.

In order to stimulate the introduction of motor 'bus transportation into the country, the Italian government, in June, 1904, issued an enactment by which the minister of public works is empowered to grant subsidies. The law fixes these at a maximum of $96.50 per year per kilometre, for a service including passenger, freight and mail transportation, a rate of $77.20 for passenger, baggage and mail service, and $38.60 for freight service alone.

A company, already under formation in Rome, having ample capital, now plans the exploitation of numerous lines of motor 'busses and trucks throughout the country. At the head of this enterprise is Alexander Sedretti, a capable lawyer, and it is understood that the active management will be placed in the hands of Count Henry Post Mancini, who was the founder of the Societ Italienne des Automobiles de Rome.

POWFR LOST BY FRICTION

Little Data Available Concerning Gas Engines—What one Experiment Showed.

"The general methods in practice for ascertaining the work lost in friction by prime-movers leave much to be desired on the score of accuracy, and of a really satisfactory statement of the laws which govern friction," says Engineering. "One generally accepted view is that for a constant number of revolutions per minute the friction horsepower may be taken as nearly constant at all loads, but a comparison of various steam engine tests will show that, at any rate, the variation, if not very great, shows an increase at the higher loads. In all cases the value of the friction horsepower is obtained by deducting the brake horsepower from the indicated horsepower; and, although this is the only method possible under test conditions, it is open to the objection that either, or both, of these values, from which it is derived, may not be absolutely accurate.

"As regards the relations between the frictional losses of an engine at various revolutions per minute, very little information is available, nor does any experimenter appear to have considered the matter of sufficient interest to investigate.

"With respect to frictional losses in gas engines, there appears to be no published information from which any idea of the influence of speed on frictional loss is deducible; but one point which is striking is that for uniform speed the friction appears to be much more constant than in steam engines. In engines governed by entirely 'cutting out' the gas the reason for this may easily be found. By taking 'bottom loop,' or light spring, diagrams, both after an explosion and after a 'cut-out,' it will be found that the back pressure line in the latter is considerably higher than in the former, while the suction line is also lower, thus making the diagram of negative work considerably greater for a cut-out than a working stroke. As the cutting out occurs proportionately to the load, the losses due to it are greatest at light loads, when the engine friction is lowest, and are least at the highest load, when the friction is greatest, thus more or less compensating each other.

"In considering the friction of a gas engine, there are two kinds to be taken into account—that of piston and journals, etc., and that due to the admission and expulsion of the air and gasses, the latter being measurable from the light spring diagrams mentioned above. As both require the expenditure of power to overcome them, their combined value is what is usually understood as gas-engine friction; but for analytical purposes it is convenient to be able to separate them, so that any defect in the design, either of ports and valves of mechanical elements, may be revealed.

"The engine could develop from 7½ to 8 b. h. p., and with the latter figure and the friction h. p (2), the mechanical efficiency was 80 per cent., or with the friction h. p. taken into account its value is raised to 86 per cent. With a view to ascertain what losses occurred through piston friction, the piston was disconnected and the pull necessary to keep it moving measured. This was found to be 13 pounds, although an initial pull of 40 pounds was required to overcome the friction of repose. Assuming no increase at the working velocity of piston, the work lost would be, stroke by 2 revolutions per minute by 13, or 6,500 foot-pounds, or very nearly 0.2 horsepower.

"An important point tested by the author was the amount of kinetic or stored energy in the flywheel, which latter weighed approximately a ton. This was effected by first taking the average engine speed during three minutes, and then shutting off the gas and then putting the speed counter in gear. A calculation by formulae was next made, and as a check on its accuracy intermediate values were prepared from it.

"These varied greatly and in some instances the discrepancies were large. This was the case in the first and last observations made which are accounted for by the author as follows:

"In the first some error might be anticipated from the speed of the engine and not from reading the counter at the exact instant, while in the last the engine was dragging over the final compression stroke preparatory to reversing its direction of rotation."

Unfortunately the engine used for the experiment was one of the Otto type running at a normal speed of 200 r. p. m., and accordingly not forming a reliable basis for comparison with the average automobile motor in this respect. But the experiments did bring out in a most striking manner the important part that the flywheel plays in effecting a mean balance of the crank shaft's rotation during the intermittent impulse strokes, besides, illustrating the very rapid diminution of kinetic energy even in a flywheel of large diameter and weight.

Utility of the Pliers.

There is nothing quite so handy for working about the ignition system of a car as a pair of the standard electrician's pliers. That is, the side cutting type. Unfortunately this is a tool, the uses of which are so many and so variegated that a pair of pliers is something as easily lost as a good penknife. The motorist who wants to have his pliers handy when they are most wanted —and there are few repair jobs in which they do not come in at least incidental play—should put them in his hip pocket and see that they are kept there. The universal utility of the tool only becomes apparent with experience and is only realized to its full extent when its services are lacking.

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TOURING IN GEORGIA

Incidents, Accident and a Repair that Satisfied a Motorist Seeking Experiences.

"Sooner or later there comes a time in the experience of every car owner when he finds himself 'up against it,' no matter how well provided with spare parts he happens to be nor how ingenious a duffer he himself may be," said an experienced motorist who is likewise an exceedingly practical individual in the bargain, to a Motor World man.

"If the truth were known, probably I could lay claim to the long distance touring championship of the country for while I have never made any transcontinental records or anything of that, I have been constantly on the go now for three years and have covered almost every state east of the Mississippi and a good many west of it. In all that time it would be pretty hard to figure how many thousand miles traveling it has involved, I suppose I have suffered nearly every thing in the shape of a breakdown that possibly can happen to an automobile even including a total smash-up.

"But in all that time I can hardly recall an occasion when the prospect looked quite so black as it did on a run we just finished last week. I have stuck to the conventional touring grounds—in other words, the more closely settled Northern States, so long that it began to pall—every trip was like the one preceding, so that last tour was entirely below Mason's and Dixon's line—as far below as we could make it, and I tell you a man who is in search of adventure doesn't have to ship his car out to the jungles or Africa or the volcanoes of Japan in order to find difficult places to get his car into, so that he can have himself photographed getting out of them again.

"Just go down in the 'black belt'—Georgia, Alabama and Mississippi, let him get 50 or 75 miles away from the nearest railroad and he won't find that very hard to do, then if he doesn't agree with me that he might just as well be a thousand miles instead of fifty, I lose my bet. Why, man alive, in some of those way back districts in the mountains of Georgia, there are 'crackers'—white men, mind you, who hardly know the revolutionary war is over, or that Abraham Lincoln is dead.

"Imagine for a moment, if you can, asking a man who has never seen either a locomotive engine or a newspaper in all his born days, to direct you to the nearest place to have a repair made on your car. As ignorant as a Fiji islander under ordinary circumstances, he is stricken absolutely deaf, dumb and blind by the sight of the vehicle. It was positively pitiful to see a white man so absolutely ignorant and so hopelessly stupid that he scarcely realized the fact of his own existence. If you want to actually see the living conditions or prerevolutionary days with your own eyes, there is no necessity of hunting up pictures or looking at relics in museums to imagine what it must have been like. Take your car and leave civilization far behind you in the mountains of Georgia. There you can see people wearing home-spun clothes, home-made hats and home-made shoes—hardly an article of apparel or use but what has been made right on the spot.

"It would be just as productive of results to ask a Chinese laundryman recently smuggled over the border how to adjust your carburetter, as to put anything but the most ordinary of questions to one of those Georgia 'crackers.' Their ignorance and stupidity are absolutely beyond understanding. That was the kind of a country that we found ourselves in for a day or two at a time, although stopping overnight at one of those tumbledown shacks that always seem to be on the verge of toppling over, was never of our own choosing but on one or two occasions the nearest town was much too far away to make before dark and it would have been absolutely foolhardy to think of attempting those alleged roads after nightfall.

"Of course, we had anticipated to a very great extent what kind of country we would be apt to find in the South—though I must say the reality beat anticipation all hollow, and we went prepared. We had about everything in the way of replacements short of a new power plant. As we were not going anywhere in particular or following a set schedule there was no hurry, so repairs were usually effected at leisure and up to the time I'm about to tell you of, what little trouble we had met—mostly with the tires—had been easy to remedy.

"Then one fine afternoon disaster overtook us and it looked as if either the tour would have to be abandoned or at least a week spent in the backwoods waiting for a new wheel, for in descending a mountain—it was positively a terror—the car got going a great deal faster than was comfortable or safe and we made an abrupt stop against a tree with a sickening crash that told of serious damage. Fortunately, no one got anything worse than a bad shaking up, but inspection showed that one of the front wheels was a total wreck and under ordinary circumstances that is what it would have proved to be. That was certainly what it struck us at first sight, though in the end we came to think differently.

"One of the lamps was smashed but that was not irreparable damage and fortunately for us the lamp bracket had helped divert the blow so that its full force came between the frame and the front wheel, dishing the latter outward into as neat a cone as you could wish to see, but only splintering one or two of the spokes and that only slightly. There was the making of a wheel there still and if we could get it to a wheelwright's shop, we could probably travel on until a new one was obtainable. But unluckily the accident found us in a spot that could not have been worse under the circumstances. That day's run lay between two fair-sized towns that lay about 70 miles apart—a long jaunt for that country—and there were two roads, a long one that led around the base of the mountain and was used as much as any road in the far South can be said to be used, and another that was shorter by 15 to 20 miles that led right up over the mountain and against which we were solemnly warned. 'Boss, de good Lawd hab mussy on yer ef yevver try dat mounting road yo' all is shore done for. A team er der best mewls dat was ever borned kyant drag a waggin over dat mounting. Huccome you all is gwine git dat ting ober?' an old darkey who knew the hill told us in great seriousness and departed, shaking his head as if to wash his hands of the affair. Other natives told us the same thing and we decided not to be foolhardy but to take the long way around. At least I did, when one of the party suggested that it would be vastly more interesting to go over the mountain and that it would prove a good test of the car's ability. The rest chimed in so we decided to go that way and finally prevailed on the old darkey to come along as a guide for a small consideration. The old fellow's eyes nearly popped out of his head when, after much hesitation, he finally became bold enough to sit on the footboard with his feet on the step.

"His opinion of the road was verified. Positively, there could not have been anything that resembled a road less and bear its name. Still, by a great deal of careful steering we managed to average six or seven miles an hour climbing heavenward all the time. It seemed as if that hill had no top to it and it was with a great sigh of relief that we finally found ourselves there.

"'Yo shore done it, sah,' was the darkey's awestruck and only comment made while gazing reverently at the machine. His faith in its ability had grown to an extent where he would have believed that the car was capable of climbing a tree if we told him so.

"But if the ascent had been hard, the reverse was doubly so. More than once I had regretted the foolhardy decision that sent us up that hill, but going down I was ready to curse myself for an idiot, while the old darkey on the footboard held on to the dash and prayed aloud in abject terror. He was so overcome with fear that his value as a guide was lost and when the car finally did get beyond control and it was a question of over a precipice or into a tree, he collapsed so that it was a matter of ten or fifteen minutes before he was himself sufficiently to speak coherently.

"Then we got the cheering information that there was really no town short of the one we had started out to make and as we had only come about fifteen miles in the ascent of the mountain we were thirty-five from the town. Rather the unknown thirty-five than retrace the fifteen we had come over that morning was my immediate mental resolve. By dint of persistent ques-

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tioning, the darkey finally disgorged the fact that there was a settlement not far from the base of the mountain and that there was a blacksmith's shop there. He was rather hazy on distances—in fact, most darkies are and this one would keep guessing at it as long as you plied him with questions. It didn't make a particle of difference to him that but a moment previous he had said it was fifteen—he would say it was eight or nine within thirty seconds without turning a hair, so we gave it up as a waste of time, and set about righting things.

"Fortunately, most of the shock had been taken by the front tire, otherwise I think the car might be up on that mountain still, because if we had struck a few inches to one side the axle would have gone and if it had been directly head on I don't believe there would have been enough left of the engine to make it worth repairing. The front wheel seemed to constitute the only serious damage and that was so completely dished that it looked like an inverted cone.

"Having removed the wheel, we chocked the remaining three with logs, left the axle standing on the jack and snugged up everything against the weather and then we departed bag and baggage—that is, as much in the way of personal effects as we could carry, for we had no idea of what kind of accommodation awaited us at the end of this indefinite walk. And indefinite it seemed with a vengeance. Several times the women members of the party were ready to give up in despair and only the fear of spending the night in those dark woods urged them on again. Finally we arrived and found that our destination fulfilled our worst fears. A few straggling hovels on either side of a cross-road—the very one we should have traveled had we not been so foolish as to tackle the mountain.

"It was pitch dark when we arrived, but within ten minutes the entire population had heard the news and gathered around. We could not have aroused greater curiosity had we fallen from the sky. Hotel there was none, nor anything like it, but with true southern hospitality we were apportioned among the householders—and our self-appointed entertainment committee, consisting of the old darky and a leading citizen, offered to show us our respective lodgings and provide refreshment. Cornmeal cake and fat, greasy pork, washed down with tea sweetened with molasses completed the bill of fare. Every where in that district 'meat' has but one meaning and that is pork, with cornmeal or potatoes as an additional heavy weight.

"We were out bright and early the next morning to see what the local wielder of the hammer could do in the way of repairs and one of our various hosts informed us that a wagon was bound for town that day if we wanted anything—an opportunity that I gladly availed myself to wire for—not one spare wheel but two, a front and a rear. I was bound to provide against such contingincies in the future. The messenger would not return for a week or more so there would be no way of telling whether the wire ever got through or brought any response.

"In the meantime we tackled the smith and it didn't take long to find out that he was as good as none. He had never seen such a wheel before in all his existence and had no idea 'what kind of a kyart' it had been taken from. The tire puzzled him beyond expression; he kept thumbing and feeling it, and if I hadn't stopped him in time would have tried it with a red hot iron. And when we got the tire off the clincher rim it was even more of a conundrum. Then he stood aside. 'You all is right welcome to the use of the shop' he said and we started in. If it hadn't been put right up to me I think I would have preferred transporting the party on to the town in any conveyance that was to be had rather than tackle that job. But for the fact that its component parts were still intact in themselves, the wheel was an utter wreck and one misplaced blow of the hammer would have sent the spokes flying out of it.

"My experience at the forge and anvil had been limited indeed and were now scarcely more than ancient memories, but I decided to make a bluff at it anyway. After an hour's study of the problem during which period the smith and most of the population gazed on in wrapt attention, I formulated a plan of action. None of the spokes had entirely left the hub nor yet the rim, but the latter was anywhere from five to eight inches of line with the hub. I knew the proper thing to do was to take the whole thing down and start from the bottom, but I also knew that that was too much for me and I wisely refrained. Instead I managed to work the hub back into its place and then did some real smithing by forging two circular braces to go midway between the hub and the rim. Holes were punched in both between each pair of spokes and the whole was bolted together as tightly as it could be drawn up. The scheme worked to perfection.

"The chauffeur, the old darkey and myself made an early start the next morning accompanied by a native with a team of mules to make sure of getting the car out of the bad place she had gone into. The rest was merely a matter of hard work and though we started at daylight, only keeping at it every minute prevented us from having to leave the car in the woods the second night as it was dusk when we finally pulled out at the open cross road. We made the intervening 30 miles between us and the town the next day and took things very easy though the jury wheel showed no signs of weakness whatever. Fortunately my wire had gone through alright and we only had to wait a day for the new wheels. In all my experience I cannot recall a breakdown that made things look so black as that afternoon on the mountain, nor on the whole, one that was overcome with so little trouble, barring the time involved."

Suggestions from a Hotel Keeper.

In answer to a set of somewhat stringent admonitions to hotel keepers conceived from a motorist's standpoint, published abroad, C. A. Smith, of the White Lion Hotel, Cobham, Mass., makes a trenchant and effiective "tu quoque," by putting forward the following suggestions, which he trusts may be worthy of a little consideration by motorists:

1. When you enter the hotel do not think you are the lord knows who and start ordering everyone about.

2. Do not give yourself airs, as you are not the first person the proprietor or his servants have seen that day.

3. Do not leave your car drawn up outside the front door, thus blocking and preventing everyone else from pulling up in the right royal style you may have thought you did. When you get out of the thing have it moved at once, and let others have a chance of getting in the place.

4. If you know your car makes a beastly mess wherever it stands, give the attendants a copper or two to clear the stuff away before some lady has the misfortune to drag her skirts through it, and thus spoil a pretty frock.

5. Remove your dirty and wet mackintashes outside the hotel, or in some suitable place—say, the lavatory, where the drips will not interfere with the comfort of other visitors.

Nantucket's Expensive Little Joke.

Nantucket's "seelectmen" having officially tabooed all things automobile from their island paradise are content to rest upon their laurels and seemingly do not care whether the fact becomes known to the outside world or not. Nor do the natives who man the little steamboat that forms the island's only connection with outside civilization take it upon themselves to be communicative in this respect. Consequently one summer sojourner after another pays freight to have his car transported to the island and back again without having the privilege of using it, and the editor of the local sheet runs a scare head every issue—that is, every week: "Another automobile arrived in town."

Evolution of a Farmer.

"A. J. McIntyre has sold his farm of 177 acres, about a mile southeast of Wilmington, to Henry Kahler. Consideration, $18,000," states a news item in a Joilet (Ill.) paper which goes on to state that "Mr. McIntyre has also startled the citizens by purchasing a 25 horsepower motor car which came Tuesday morning. It is one of the most expensive machines in the city, having cost $2,500." From the plough handles to the steering wheel evidently does not "phase" the agriculturist as he takes to one as naturally as the other.

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The Week's Patents.

826,432. Vehicle-Guard. Flora E. Jousset, New York, N. Y. Filed Apr. 4, 1906. Serial No. 309,800.

Claim.—1. In a guard for vehicles, the combination of a rod adapted to be attached to the vehicle, of a curtain adapted to be carried with the rod and slid upon same.

826,490. Tire. James H. Swain, Pittsburg, Pa., assignor, by mesne assignments, to H. M. & S. Armored Tire Company, incorporated, Pittsburg, Pa., a corporation of Pennsylvania. Filed July 25, 1905. Serial No. 271,184.

Claim.—1. A tire consisting of a tube, canvas surrounding said tube, vulcanized fiber spirally wound around canvas, a wrapping of thin steel spirally wound around said vulcanized fiber, in an opposite direction thereto, vulcanized fiber spirally wound around said steel in an opposite direction to said steel, canvas surrounding said vulcanized fiber, a tube surrounding the last-named canvas, said tube having an enlarged tread, and a rim-seat carried by said tube, substantially as described.

826,531. Carburetter. Joseph E. M. Briest, Levallois-Perret, France. Filed Mar. 11, 1905. Serial No. 248,520½.

Claim.—1. A carburetter in which the admission of spirit and air is simultaneously controlled, comprising a stationary cylindrical casing, a mixing-chamber capable of moving up and down in said stationary casing, the mixing-chamber having a truncated conical portion, a rod being cylindrical at its lower end and gradually flattened toward its upper end and adapted to control the admission of the spirit into the mixing-chamber, a stationary conical part forming a passage between its cone and the trun-

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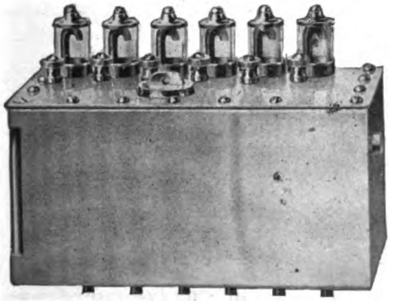
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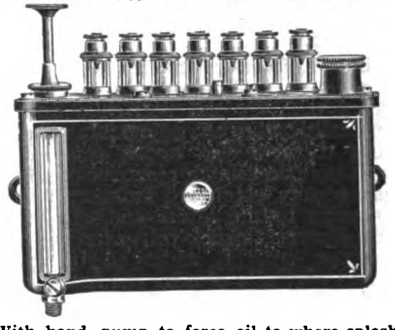
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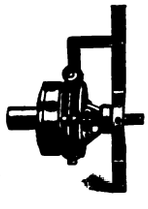
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cated conical portion of the mixing-chamber, said passage serving for the admission of air and being controlled by the vertical movement of the mixing-chamber, the walls of the mixing-chamber having holes at its upper end for the passage of the mixture, substantially and for the purpose as specified.

826,612. Tire. William B. Sawyer, Riverside, Cal., assignor of one-third to S. G. Armstrong, Riverside, Cal. Filed Dec. 5, 1905. Serial No. 290,461.

Claim.—1. A vehicle-wheel rim composed of a felly having a channel in its outer face; a plurality of sections composed of non-puncturable material having channels in their inner faces which together with the channel in the felly form pneumatic-tube channel; a pneumatic tube in said channel; means to hold non-puncturable sections against separation from the felly; resilient cushions between the ends of said sections; and wearing material exterior said sections and cushions.

826,617. Wheel. George Shugers, Auburn, Ind. Filed Dec. 6, 1905. Serial No. 290,613.

Claim.—1. In a wheel-rim, the combination of a body, a tire-clenching band having lugs adjacent to its ends, and a fastener carried by the body and co-operating with the said lugs of the band to draw the ends of the band toward each other and hold the same against movement away from each other.

826,622. Solid Rubber Tire. James A. Swinehart, Akron, Ohio. Filed Oct. 2, 1905. Serial No. 280,916.

Claim.—1. As a new article of manufacture, a solid rubber tire of substantially the same width from base to tread having continuous V-shaped channels oppositely in its sides substantially midway the depth of the tire, said channels having opposite walls and adapted to close one upon the other when the tire is under the pressure of a load.

826,623. Pneumatic Tire. James A. Swinehart, Akron, Ohio. Filed Oct. 25, 1905. Serial No. 284,272.

Claim.—1. A pneumatic tire having a solid base, in combination with a clincher-rim in which said base is engaged at its edges, the said base having a solid depth greater than the depth of the rim and filling the space between and above the edges of the rim, the edges of the fabric lining the inside of the tube extending through said base, metallic pieces transversely of said base through said fabric engaging beneath the edges of the rim, and a tie centrally of said base with which said transverse pieces engage.

826,630. Tachometer. Curtis H. Veeder, Hartford, Conn. Filed July 17, 1905. Serial No. 270,124.

Claim.—1. A speed-indicator comprising a rotating liquid-pump, an indicator-tube connected to the discharge of said pump, a reservoir, a connection from the reservoir to the indicator-tube above the liquid-level, and connections from the reservoir to the pump on both sides thereof through openings of restricted area near the axis of the pump whereby variation of pressure through displacement of the pump-impeller is avoided.

826,696. Combined Motor and Power-Transmitting Mechanism. John K. Stewart, Chicago, Ill. Filed Jan. 16, 1905. Serial No. 241,401.

Claim.—In combination with an explosive motor, a frame mounted rigidly on the frame of the motor comprising upstanding arms, power-transmitting devices mounted on such frame and power-communicating connections from the motor-shaft to such devices; a muffler for the motor consisting of a perforated sleeve encompassing one of the upstanding arms and connections from the cavity of such sleeve to the exhaust of the motor.

826,757. Sprocket-Wheel. Welby C. Waterfield, Sandusky, Ohio. Filed Oct. 16, 1905. Serial No. 283,050.

Claim.—1. A sectional sprocket-wheel comprising a split hub and rim, the hub-sections having semi-circular flanges which when together form a complete, continuous circular flange, the spokes of the rim-sections connected together and these connected portions removably secured to the flange of the hub-sections.

826,787. Carburetter. Jabez P. Kemp, Baltimore, Md. Filed July 8, 1905. Serial No. 268,765.

Claim.—1. In a carburetter for explosive-engines, a casing having a mixing-chamber provided with air and fuel inlet openings, a vertically-arranged adjustable plug extending through the upper part of said casing into said mixing-chamber and having a passage-way extending from said fuel-inlet opening to the lower end of the plug, a spring-pressed check-valve, having a conical upper surface, arranged below said plug and normally closing the lower end of said chamber, said valve being arranged to open downwardly by atmospheric pressure, a spring-pressed fuel-valve supported by and movable with said check-valve and normally closing the end of said passage-way, a valve for said air-inlet opening and means for simultaneously adjusting said plug and air-inlet valve to vary the quantity of explosive mixture.

826,794. Friction-Clutch. Augustus F. Mack, Brooklyn, N. Y. Filed June 14, 1905. Serial No. 265,161.

Claim.—1. In a friction clutch mechanism, a driving-shaft, a fixed frusto-conical clutch-ring thereon, a driven shaft, a sleeve on said driven shaft and two frusto-conical clutch-rings respectively fixed on said sleeve and shaft and both rotated in the same direction by the first-named clutch-ring; one of said rings being surrounded by and the other surrounding said driving clutch-ring, and means for moving either of said driven rings into frictional contact with said driving-ring.

826,849. Valve-Gear. Wilhelm Hartmann, Berlin, Germany. Filed Sept. 21, 1905. Serial No. 279,425.

Claim.—A valve-gear for intermittently and positively actuating a valve comprising a valve-lever connected with the valve, a bell-crank lever and a detent member arranged at the end of one arm of the valve-lever and capable of coupling the bell-crank lever with the valve-lever to impart motion for opening and closing the valve.

826,850. Gearing. Elwood Haynes, Kokomo, Ind. Filed Jan. 15, 1906. Serial No. 296,178.

Claim.—1. In a transmission-gear for motor-vehicles, the combination with the motor-shaft, the driven shaft adapted for connection with the driving-wheels of the vehicle, of a change-speed transmission-gearing operatively interposed between the motor and driving shafts, including two sets of gears, one set of which is slidable to bring the gears thereof severally into mesh with the gears of the other set, said transmission-gearing comprising means for positively transmitting driving power from the motor-shaft to the driven shaft while preventing transmission of driving power from the driven shaft to the motor-shaft at a time when the driven shaft rotates forwardly.

826,865. Wheel. John W. Meixell, Lewisburg, Pa. Filed Aug. 22, 1905.

Claim.—1. The combination, of a felly, laterally-adjustable tire-clamping means carried thereby and comprising a fixed wall, a removable outer ring, an internal ring, and bolts passing through said wall and rings, and a tire having its edges clamped between said wall and internal ring and between said internal ring and removable ring.

826,903. Starting Device for Explosion-Motors. Carl A. von Soden-Fraunhofen, Stuttgart, Germany, assignor to The Firm of Daimler Motorengesellschaft, Uterturkheim, near Stuttgart, Germany. Filed Dec. 10, 1904. Serial No. 236,331.

Claim.—1. In a starting device for explosion-engines, the combination with an axially-movable starting handle, of a cam having a projection, a cam-shaft carrying said cam, means for axially moving both the handle and said cam-shaft, a valve-rod, a roller provided at said rod and traveling upon said cam and engaging with said projection while starting the motor, thereby opening the valve connected to the rod and reducing the compression, substantially as described and for the same purpose set forth.

826,940. Driving and Steering Mechanism for Motor-Vehicles. Wesley E. Ingram, Stockton, Cal., assignor of one-third to F. R. Clarke, Stockton, Cal. Filed Jan. 18, 1906. Serial No. 296,625.

Claim.—1. In a driving and steering mechanism for motor-vehicles, the combination of an axle-body, a spindle mounted to swing on said body, a wheel rotatable about the spindle, a sleeve mounted on the axle-body and having a longitudinal bore or passage, an endwise-movable rod disposed in the bore or passage of the sleeve and connected with the spindle, a hub arranged on and rotatable about the sleeve, a gear-wheel fixed with respect to said hub, and connections intermediate the said hub and the wheel on the spindle for transmitting rotary motion from the former to the latter; the said connections being arranged to accommodate themselves to swinging movements of the wheel.

826,969. Variable-Speed and Reversing Mechanism. George Stephan, Mertzwiller, Germany. Filed Mar. 16, 1906. Serial No. 306,373.

Claim.—1. In a mechanism such as described, a driving-shaft, a gear-wheel and cone fixed thereon, a driven shaft parallel to the first shaft, a gear wheel fixed thereto at one end and an idle pinion between the two gear-wheels, a cone loose on the driven shaft of opposite concity to the one on the driving-shaft, an internally-toother member loose on the driven shaft, a gear-wheel within the member fixed on the driven driving shaft, an internally-toothed member fixed on the driven shaft, a planet-wheel on the second cone meshing with the internally-tother member and gear-wheels therein, and a shiftable belt connecting the two cones.

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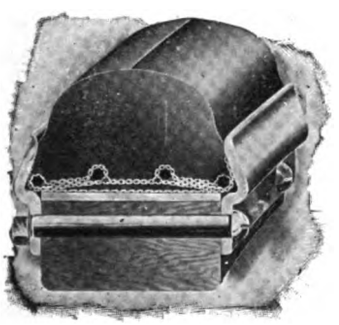
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"Autogas" tanks are *not* licensed under the patents of The Commercial Acetylene Company of New York, and will be prosecuted as infringements thereof.

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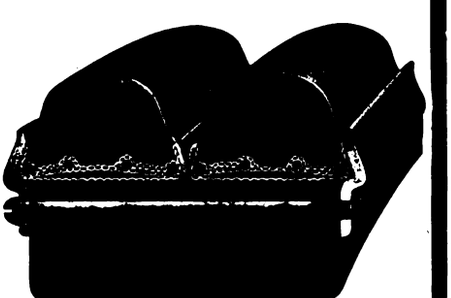


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FOR LIGHT WORK

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SINGLE and TWIN

SOLID TIRES



TWIN
FOR HEAVY WORK

Note Method of Attachment.

The successful commercial vehicle tire must have its retaining device vulcanized inside the tire, otherwise the attachments rust. The HARTFORD is secure and rust-proof.

THE HARTFORD RUBBER WORKS CO., Hartford, Conn.

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1,134 MILES ON SCHEDULE
and NEVER VARIED A MINUTE

The **MAXWELL** four-cylinder car by so doing **WON THE DEMING TROPHY** with a **PERFECT SCORE**

CHICAGO RELIABILITY RUN, 86 cars started, of which FOUR WERE MAXWELLS. 32 cars finished with perfect scores,

Four of which were Maxwells.

FIGURE IT OUT YOURSELF

(One MAXWELL driver arrested and fined two points which were rescinded afterwards).

In the LOS ANGELES-EL PISMO Endurance Contest

FIRST HONORS AWARDED

The "Maxwell"

For RELIABILITY, BEST OIL RECORD and BEST GASOLINE RECORD

106 cars started; the largest contest ever held in America

There's a reason for all this.
IN CONTEST AS IN CONTENTMENT

MAXWELLS EXCEL

You will be in debt to your good sense if you don't investigate. MAXWELL cars bought now are up-to-date for years to come. MAXWELL cars are sold under the positive guarantee that

as good a Car cannot be sold at a lower price

Write to-day for a Catalog to Department 2

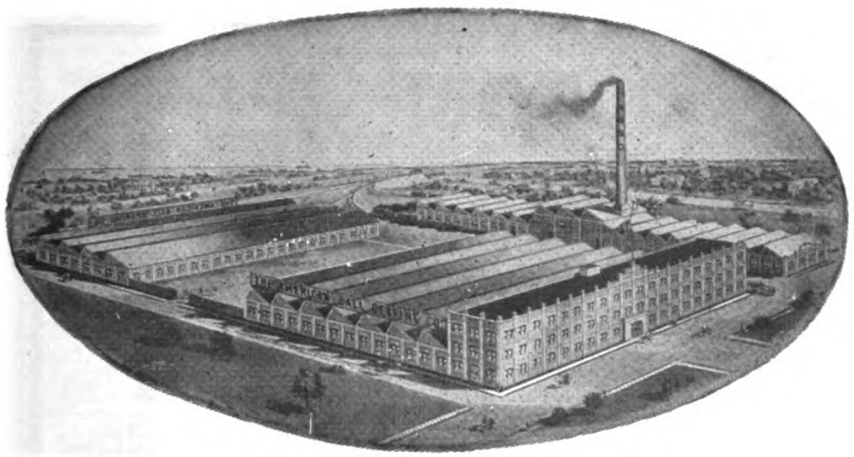
MAXWELL-BRISCOE MOTOR COMPANY

Chicago TARRYTOWN, N. Y. Pawtucket

Members American Motor Car Manufacturers' Association.



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The output of complete Front and Rear Automobile Axles of this plant exceeds the capacity of all competition combined.

THE American Ball-Bearing Co.

L. S. & M. S. Ry. & Edgwater Park

CLEVELAND, OHIO, U.S.A.

There is No Secret Underlying the Deserved Popularity of



The 50 H. P. Thomas Flyer

$3,500.00

It is the best car, rated by the greatest number of highly standardized essential factors.

This is literally true, because its combined French and American staffs of engineers have successfully embodied in its construction, all the really vital features that have made for superiority here and abroad.

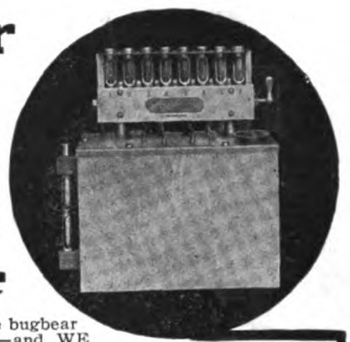
Write to-day for the beautiful Thomas catalogue.

The E. R. Thomas Motor Co.,

1416 Niagara St., Buffalo, N. Y.

Members Association of Licensed Automobile Manufacturers.

This Oiler Will Add YEARS to the Life of any Car



THE Oiling question is the bugbear of every manufacturer—and WE HAVE SOLVED IT.

If the bearings cut or seize, or any part of the car gives out through improper lubrication or the user "forgetting" a bearing or two, THE CAR ALONE IS BLAMED—you know that to be a fact.

An unreliable oiler has hurt or ruined the reputation of more than one car. You probably know that, too.

We have the only positive acting oiler on the market which is scientifically suited for the requirements of an Automobile.

We don't want you to take our word for it, either. We'll PROVE IT to your entire satisfaction. You see, the

Hill Precision Oiler

SHOOTS the oil to each Bearing

in just the quantity needed at ALL ENGINE SPEEDS.

Adjust it for low speeds and it automatically takes care of each bearing as the speed increases.

Once adjusted it will keep on delivering the same amount of oil to the very drop to each bearing under all running conditions AS LONG AS THE CAR LASTS.

It's practically fool proof, it's as strongly made as the car itself, it's self-cleaning and won't clog from unstrained oil, and no shock, jar or strain can throw it out of adjustment.

Furthermore, it requires no attention whatever, except putting oil in the tank, it never "forgets," never gets out of order, and never fails to do its full duty. It's mechanically impossible.

Now these statements are either true—or they are not.

If they are true it means better service and more satisfaction to buyers of your cars.

It means low up-keep cost, few repairs, in a word, *prestige* for you as a manufacturer.

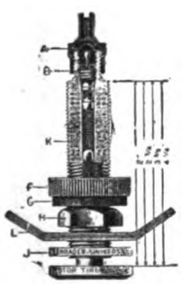
It will cost you nothing but your time to prove our claims either true or false in your own way—in your own factory, and at our risk.

We will send a Hill Precision Oiler to any manufacturer to test and try entirely at our expense and without a penny of cost, until convinced that it SOLVES THE OILING PROBLEM for good and all. When may we send one?

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SCHRADER UNIVERSAL VALVE.

Trademark Registered.



SIMPLE AND ABSOLUTELY AIR TIGHT.

MOTOR TIRE VALVES, as shown in cut, are made in four lengths as shown. Cut is exactly half size of the 2 in. valve.

SUPPLIED TO THE TRADE BY ALL TIRE MANUFACTURERS.

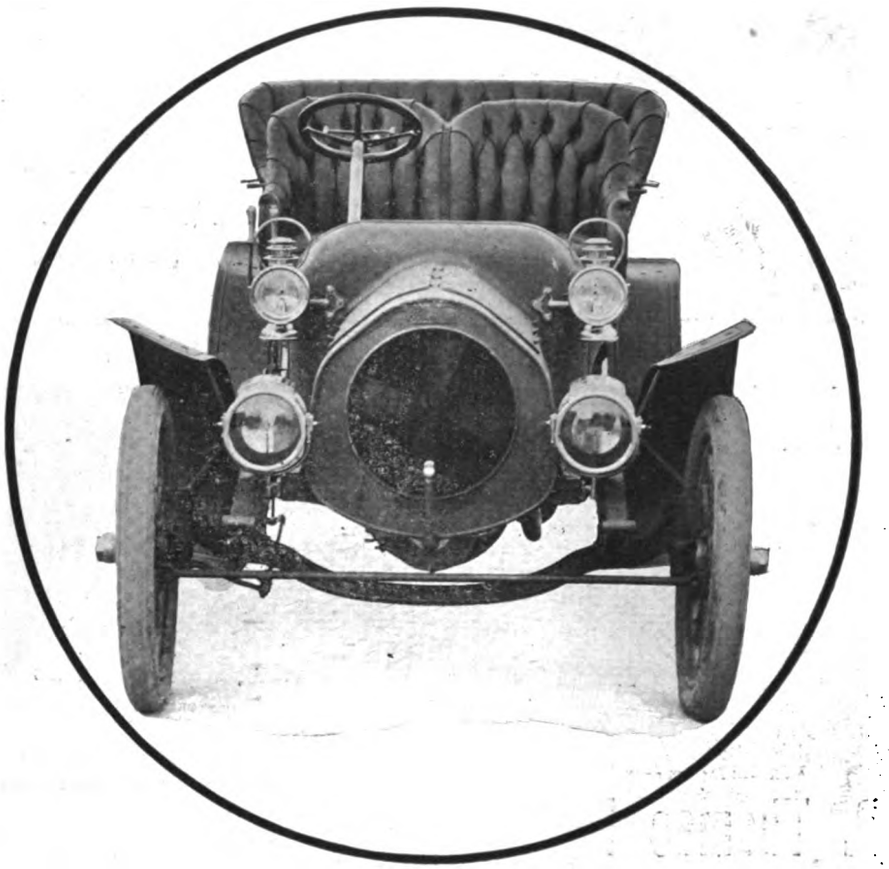
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ANNOUNCEMENT

PREMIER VICTORY



The Premier 1907 model went through the Chicago-Elgin-Aurora Reliability Run with a perfect score. This car was in no way special and this performance can be expected of any of these cars as they are marketed regularly. We have never built "freaks" though our models have always been at least thoroughly up-to-date, and the Premier name stands for uniformly good product.

The Premier Company has always striven to given the people what they want and the best of the kind. It was one of the first two companies to market shaft drive motor cars which were two cylinder 20 M. P. and four cylinder 40 M. P. These cars stood high and helped to make the name PREMIER in the motoring world a mark of quality.

Realizing the merits of air-cooling, its feasibility, and the demand, we entered this field, and the many hundred Premier drivers will testify to the reliability, economy and satisfaction of these cars. However, being desirous of giving the buyer his option we shall continue the air-cooled car for 1907 and will add to our line a 24-28 M. P. water-cooled car which has been thoroughly proved out before being accepted, and we invite comparison with cars of either American or Foreign manufacture.

The more you know of it the better you will like it.

Herewith find a letter from the driver of one of our 1903 40 H. P. water-cooled cars:

> PREMIER MOTOR CAR CO., Indianapolis, Ind.
>
> Gentlemen:—Having been advised that you are to put on the market a Water Cooled car, it has occurred to me that you might be interested in the water cooled car which you built for me in 1903, of which I enclose two photographs, one of which was taken in the spring of 1904, on the morning of our departure in it for Boston, and the other this spring, showing how it appears after three years of hard usage. The body I had remodeled this spring, and I now consider the car as thoroughly up-to-date as any 1906 model. I have used it continually since I purchased it, and made one trip from here to Boston, and am now contemplating a still longer trip this summer. I will start on it with equal confidence of completing the tour successfully on account of the excellent condition of the car. Of the six cars I have owned in the last few years, this car stands head and shoulders above the others in the satisfaction it has given me, and the cost of its maintenance in the three years has been less than the cost of any one of the other cars for a year.
>
> Yours very truly, FREDERICK M. AYRES.
>
> Dict. July 28, 1906.

We are prepared to make early deliveries of a few samples to agents, and regular deliveries of both models beginning with September, and your inquiries are solicited.

PREMIER MOTOR MFG. CO., Indianapolis, Ind., U. S. A.

Member American Motor Car Manufacturers' Association.

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SOMETHING'S WRONG



and the question is to find it. The Veeder Odometer readings show that it is taking half as much gasoline again to run the car 100 miles as it did a month ago. That means lack of lubrication somewhere or faulty engine operation. Anyway, it's serious, and it's lucky the Veeder Odometer readings showed it. A Veeder is a mighty valuable instrument on a car.

"It's nice to know
How far you go."
—*Veeder Odometers.*

THE VEEDER MFG. CO., 26 Sargeant St., Hartford, Conn.

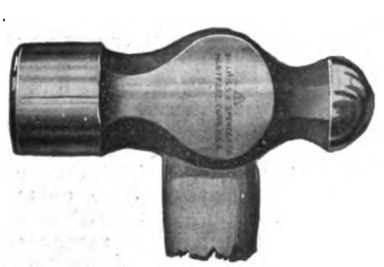
Makers of Cyclometers, Odometers, Tachometers, Tachodometers, Counters and Fine Castings.

FOR YOUR AUTO KIT.

The "B. & S." Ball Pein

HAMMER

Drop-Forged of Special Steel.
Hickory Handles.



The Hammer that will stand the racket of all-around usage on your car or in your garage.

THE BILLINGS & SPENCER CO., Hartford, Conn.

Whitlock Coolers
FOR 1907

WILL BE THE STANDARD FOR HIGH-GRADE CARS

Do not waste time and money on experiments.

If prompt deliveries appeal to you, you will be interested to know that we already have **the** largest factory in America engaged in manufacturing cellular coolers, and that we are now erecting a second and larger building which will more than double our present capacity.

In addition to cellular coolers, we make **disc radiators** of several types, **hoods, exhaust** and **inlet pipes** and **headers, muffler** pipes and bent and brazed work of every description for automobiles.

THE WHITLOOK COIL PIPE COMPANY,
HARTFORD, CONN.

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The Incomparable WHITE

THE CAR FOR SERVICE



PRIVATE OWNERS IN THE A. A. A. TOUR

The most interesting feature of the recent tour to the general public was the performance of private owners. As in all previous tours held in this country, White owners turned out in comparatively large numbers. Four White private owners started and four finished the tour—as many as any other three makes combined.

Augustus Post, of New York, **made a perfect score for the Deming trophy**, but, owing to his official position on the committee, relinquished his claim to the trophy in favor of the other car which had a clean score. Mr. Post did not even have a puncture, nor did he make any replacement or adjustment whatever.

Paul H. Deming, of Detroit, chairman of the touring committee, a non-contestant, came through in his usual faultless style, carrying in his runabout from two to seven people, as the duties of his position demanded.

J. G. Cassatt, of Philadelphia, not only drove from his home to the starting point at Buffalo, but also drove from the finish at Bretton Woods back to Philadelphia, thus putting to his credit the greatest mileage of anyone participating in the tour. Mr. Cassatt's only penalization was due to a piece of waste clogging his gasoline line.

The car of L. F. Braine, of New York, which had seen 12,000 miles of service before the tour commenced, was the only 1905 machine to complete the tour.

Of secondary importance are the doings of drivers representing the various companies. H. K. Sheridan, entered for the Glidden trophy, was penalized at but one of the 54 checking stations. Here he lost two points, due to three nail punctures in a 12-mile control.

WHITE SEWING MACHINE COMPANY

CLEVELAND, OHIO

Radiator Talks

BY FRANK BRISCOE

No. 3. Radiator Mounting.

More radiators leak through faulty mounting than anything else. It is as important to mount them right as to build them right.

The usual mistake is to mount them **too rigidly.**

Bear in mind this idea. A radiator, being hollow brass and copper is necessarily weaker than the frame. Every frame twists and bends more or less. If the radiator is tied rigidly to four or more points which change location as to one another something has to give. Result, a leaky radiator.

There are almost as many forms of mounting as radiators. Almost all have either side brackets or bottom studs. The latter are preferable unless the bracket is made to extend all or partly under the radiator. When bottom studs are used there should be not more than two. When side brackets are used, if well up on the side, hose connection at the top is generally the only other support needed. Being flexible it is good.

With the bottom studs a fairly rigid top connection is necessary. The best is one or two at most rods running from the top straight back to the dash. Rods running from the top down to the frame are almost always bad. Worst of all are rods running from one side of the top to the opposite side of the frame. This is sure to leak.

In other words the three-point suspension is the ideal. One or two of the points should be slightly flexible, as the hose connection with rigid side brackets, or the bottom studs with rigid dash rod.

With either side brackets or studs (especially the latter) leather fibre should be put between the bracket or stud plate and the supporting member. Then get an intelligent man, not a prize fighter, to screw the nuts on the bolts tight enough but **not too tight.** Remember the vibration.

A swivel support is used on some foreign cars as the Daimler, F. I. A. T., and Panhard, but seems to be too much trouble for Americans. We have a support in which a semi-spherical hole in the bottom of the radiator bracket rests over a half ball, the nuts on the two bolts being screwed up against a turn or two of a stiff spiral spring. One hood rod is used with this. The spring permits the brackets to turn slightly in any direction over the ball, taking up the twist of the frame without strain. Regular ball and socket joints are used on some foreign makes but are expensive and clumsy.

Flexibility can be given to the dash rod by attaching it, not direct to the radiator, but to a short strip of steel, which is mounted horizontally on two lugs so as to stand out about an inch from the back of the radiator. This strip not only eases the vibration but takes up any torsion of the radiator with respect to dash.

In general I recommend strongly and earnestly that designers give these ideas some thought. When you are in doubt we are always ready to recommend, and having had experience (some of it bitter and costly) with many hundreds of methods, feel that we know what to avoid.

BRISCOE MFG CO.

Detroit, Mich. **Newark, N. J.**

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THE

Foster Shock-Brake.



is the best and most perfect device yet invented for eliminating shocks to your automobile occasioned by riding over rough places.

It takes away all the jar, prevents breakage and adds to the life of the machine.

Most dealers carry them in stock. All dealers should.

Write for particulars.

Gabriel Horn Manufacturing Co.

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CLEVELAND, OHIO



The Auto-Meter tells Speed and Distance. It's acurate when you get it and *stays accurate* for a lifetime The only way to put it out of business is to smash it.

You ought to have an **Auto-Meter** on your car. It means Certainty—Exact Knowledge—Ease of Mind. It's a sure prevention of trouble with the "Powers that be."

The Auto-Meter

The Large, Plain Figures of the Auto-Meter are easily read 6 feet away. The figures are steady, for *Speed Alone* changes the dial.

is dependable under all conditions, whether you go fast or slow—up hill or down—whether your car is listed or on a level.

It is the only speed indicator which correctly registers LOW SPEEDS—magnetism makes this possible.

Other indicators depending on centrifugal force are unreliable, *even when new*, at speeds under 10 miles an hour, and unreliable at *any speed* after the little friction cams and pins get worn and the springs become weakened.

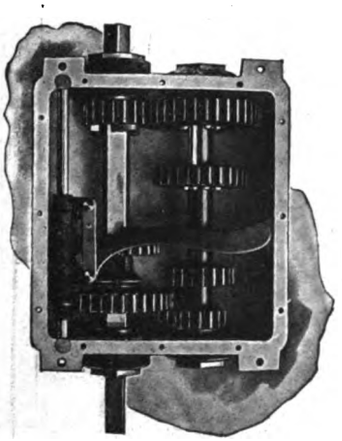
Only 1000 of an inch wear means 5 miles or more an hour in the reading. Magnetism has no springs, cams or pins to it, so **The Auto-Meter** is as reliable ten years from now as it is today.

There are other good points about **The Auto-Meter**—interesting, convincing, practical. You ought to know them.

Ask your Dealer or Garage man to explain all these good points of **The Anto-Meter,** or write us and we'll tell you.

WARNER INSTRUMENT CO., 310 Roosevelt St, Beloit, Wis

BROWN-LIPE GEARS



Irreversible Steering.

Bevel and Chain Drive Differential.

Many Sizes and Models.

Sliding Gear Transmission.

K. FRANKLIN PETERSON, 166 Lake Street, Chicago, Ill.
THOS. J. WETZEL, 11 Warren Street, New York. } Direct Factory Salesmen.

CHAS. E. MILLER, 97 Reade Street, New York;
Branches in Philadelphia, Boston, Cleveland, Buffalo and Detroit. } Sales Agent Carrying Stock.

POST & LESTER CO., Hartford, Conn., Eastern Sales Agents.

BROWN-LIPE GEAR CO., 200 S. Geddes St., Syracuse, N. Y.



Recognized as the most satisfactory means of ignition.

Now used and endorsed by **52** of the leading automobile and motor boat manufacturers.

Every battery guaranteed to give satisfaction or purchase money refunded.

Write for descriptive pamphlet.

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Neither Theory nor "Paper Talk" Ever Produced a Practical Motor Tire



Single type for channels 2½ to 8 inches in width.



Dual type, duplicating any width of single; for heaviest work ever demanded of a tire.

¶One Power Vehicle owner learned that experimenting with such tires involved eight replacements in three months; prolonged laying-up of his Truck, disappointment of customers owing to non-delivery of goods, etc., etc.

¶He has re-adopted **"Firestone"** Side-Wire Motor Tires because they are the most practical, therefore the most ***economical.***

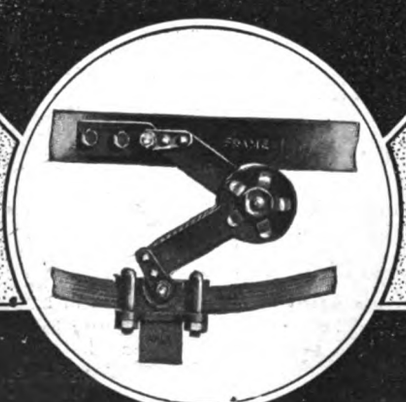
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TRUFFAULT-HARTFORD
SHOCK ABSORBER
TRADE MARK
THE PIONEER AND THE BEST
YOUR car needs it

Increases speed
Prevents breaking of springs
Doubles life of tires
Insures comfortable riding



Prevents lost traction
Saves running power
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Immediate deliveries

Send for booklet

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The great **strength, durability** and **resilience** possessed by the

HEALY LEATHER TIRE

is occasioned by reason that **leather, rubber** and **fabric** each are placed exactly where they are needed to meet the various strains and wear under the most severe conditions.

No Punctures. No Rim-Cutting. No Blowouts. No Skidding.

We Guarantee Our Tire.

We have much more to say. Let us tell it to you.

HEALY LEATHER TIRE CO.,
Healy Building, 89-90 Gold Street, NEW YORK CITY.

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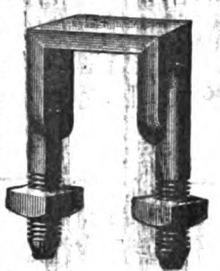
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A. O. SMITH CO.
Milwaukee, Wis.

We are prepared to estimate on your 1906 Forgings.
Satisfaction Guaranteed.



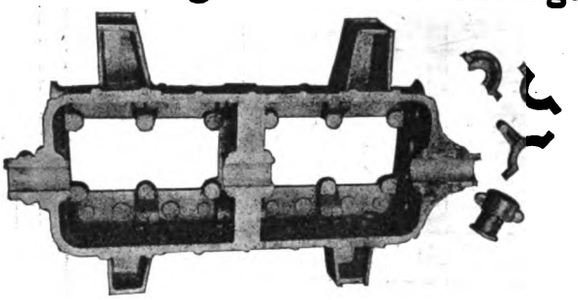
Thousands of our spring clips are now in use, having been supplied to the leading automobile manufacturers.



Have you secured our prices?

THE M. SEWARD SONS COMPANY, New Haven Conn.

Parsons' Manganese Bronze Castings.



Sole Makers
THE WILLIAM CRAMP & SONS SHIP & ENGINE BUILDING COMPANY, Philadelphia, Penna.

KINWOOD AUTOMOBILE PARTS.

ONE QUALITY—THE BEST.

OUR LEADERS:

Kinwood Perfection Radiators
and
Kinwood Mechanical Oilers.

KINWOOD PRESSED STEEL SPECIALTIES:

Frames, hoods, dashes, fenders, gasolene and water tanks, mufflers dust and drip pans, radiator fans, gasolene gauges, fittings, couplings, etc, etc.

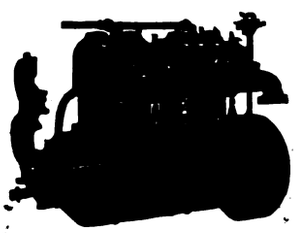
Large facilities and dependable deliveries.

K. FRANKLIN PETERSEN,
166 Lake St., Chicago,
Western Representative.

THOMAS J. WETZEL,
11 Warren St., New York,
Eastern Representative.

THE KINSEY MFG. CO., Dayton Ohio.

A "CONTINENTAL" MOTOR



Type "O" 45 H. P.

is the only one to consider when you want the highest grade, lightest and most durable and efficient motor for your car. **Cut shows our 45 H P, Motor.** Also four other sizes. Sold separately or in combination with our "Continental" power plant, including Clutch and Transmission.

Our new Muskegon plant, in addition to our Chicago shops, insures prompt deliveries.

Don't order before getting our catalogue and prices.

Continental Motor Manufacturing Co.
MUSKEGON, MICH.
K. F. PETERSEN, Direct Factory Representative, 166 Lake St., Chicago, Ill.



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"THE SPRINGFIELD"
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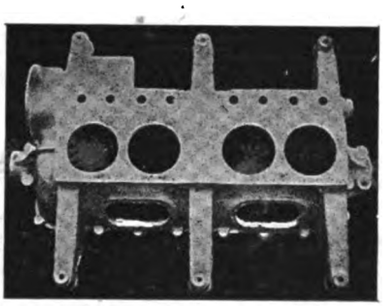
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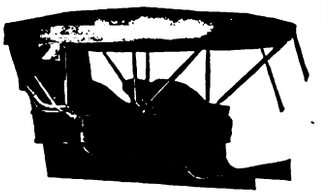
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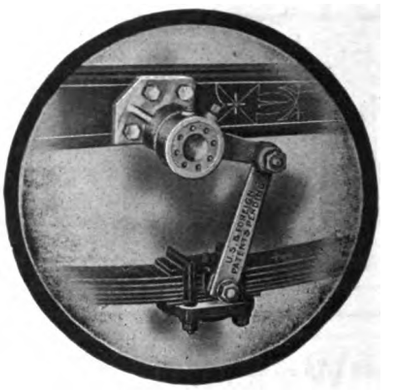
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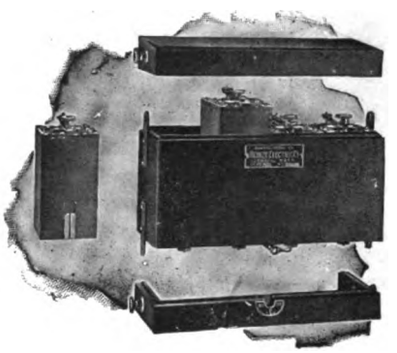
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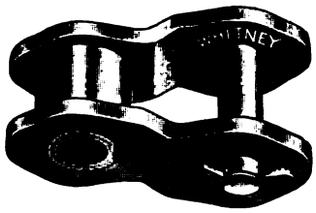
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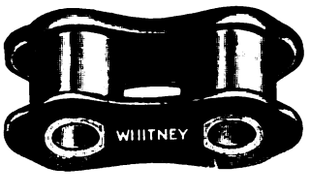
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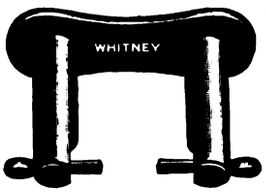
Connecting Link



OFFSET LINK



Assembled Center Block

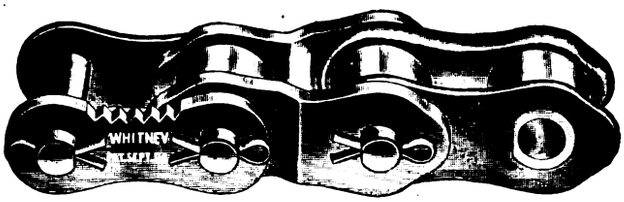


Side Link with Rivets Assembled



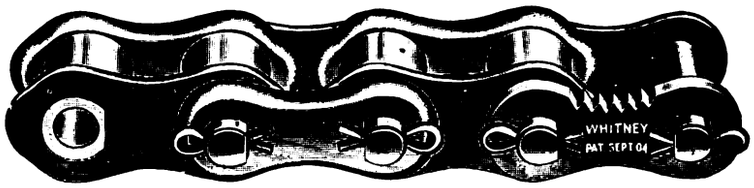
Side Link Plain

"Whitney" Offset Links for use when it is required to shorten or lengthen a chain only one Link.



Against claims made by Competitors, we submit the following list of Motor Car Manufacturers using "WHITNEY" ROLLER CHAINS and STANDARDS. Is it not time for everyone to admit that "WHITNEY" STANDARDS for ROLLER CHAIN dimensions are now the American Standards?

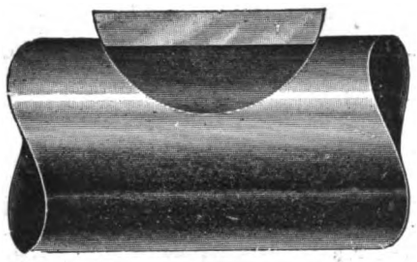
"ADAMS-FARWELL" "ADAMS VEHICLE CO." "AMERICAN MOTOR TRUCK" "AUTO-CAR EQUIPMENT" "BAKER" "BERKSHIRE" "BIDDLE-MURRAY" "CADILLAC" "COLUMBIA" "CHAMPION (McCrea)" "CROWN" "CRAWFORD" "COLUMBUS BUGGY CO." "ELWELL-PARKER" "FORD" "FRANKLIN" "GAETH" "GALE" "GROUT" "HEWITT" "THE HOLMES" "IROQUOIS IRON WORKS" "KNOX" "LAMBERT" "LEAR" "MATHESON" "MACK BROTHERS" "MITCHELL" "MOLINE" "NEW YORK MOTOR TRUCK" "OLDS" "PACKARD" "RAMBLER" "RAPID" "REO" "SIMPLICITY" "STEARNS" "THOMAS" "TOURIST" "WAYNE" "WESTERN MOTOR TRUCK" etc.

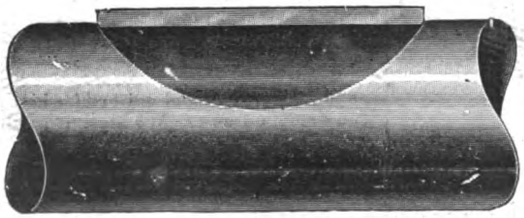


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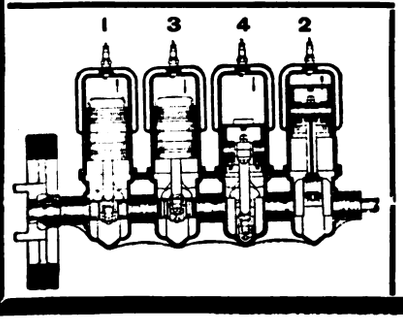
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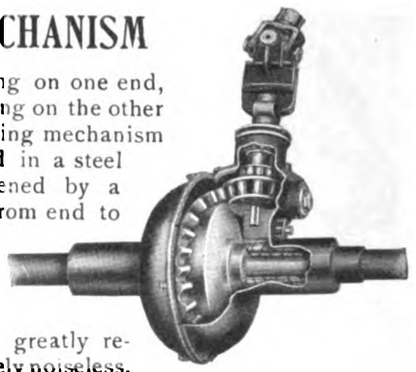
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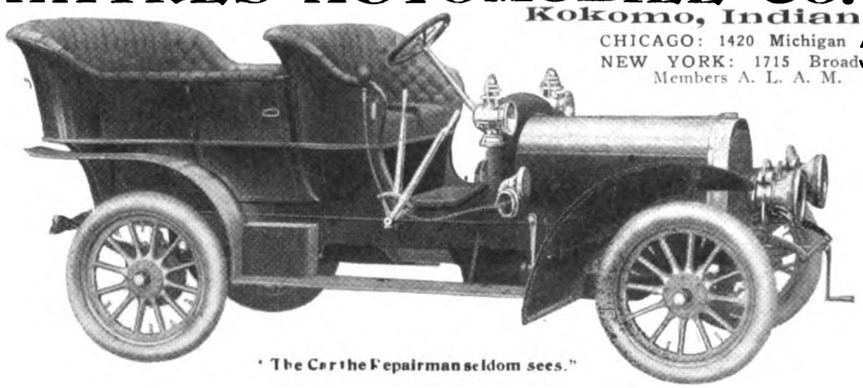
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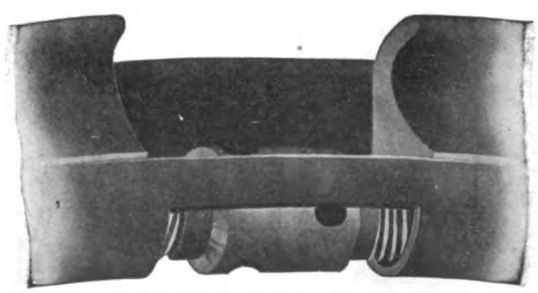
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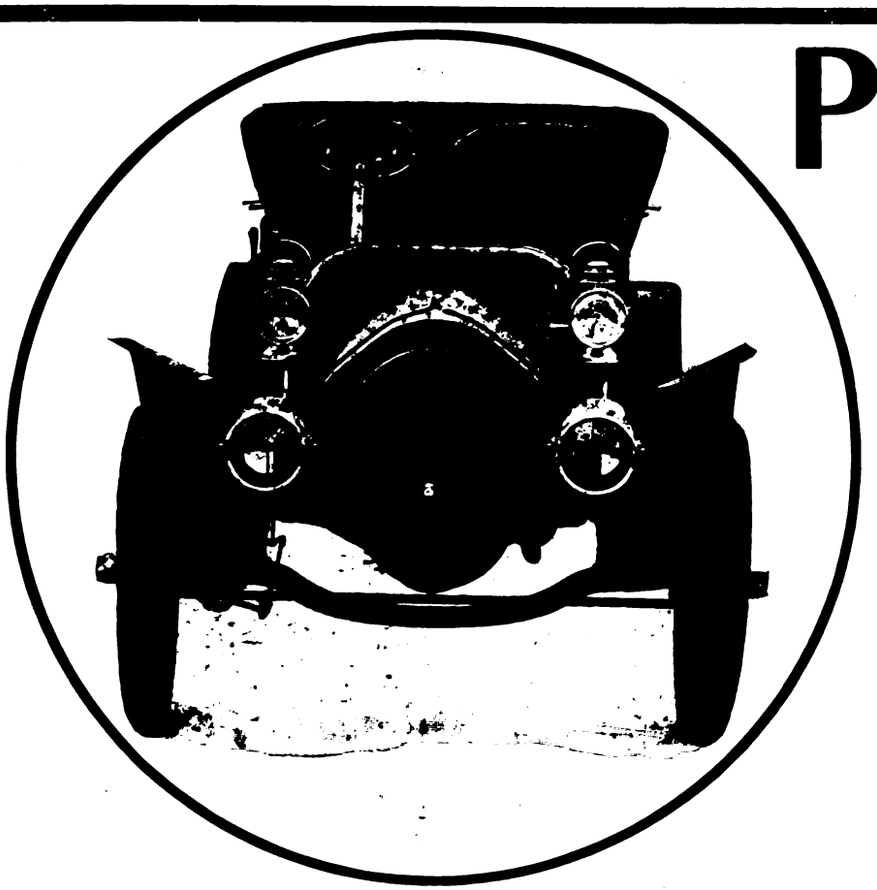
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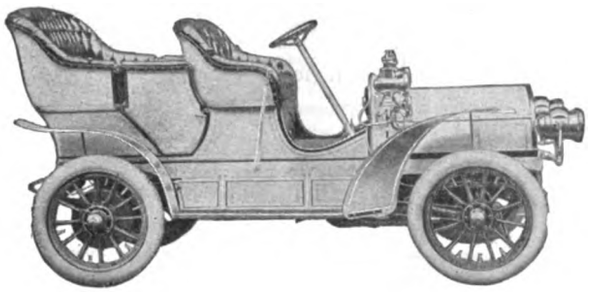
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Any Marmon owner will be glad to testify and any Marmon agent can demonstrate that no amount of hard work can make a Marmon motor overheat.

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The 1906 Marmon was good enough to finish the Glidden Tour with a perfect score, without repairs or replacements. The 1907 car will be even better.

Marmon agents are going to be busier than ever during the coming season. Better write us first and think it over afterward.

Nordyke & Marmon Co.

(Established 1851) **Indianapolis, Ind.**

Members American Motor Car Manufacturers' Association.

SOLARS

SHOW THE WAY

The **Solar Parabolens Projector** will please the motorist who wants to see where he is going.

There is light and plenty of it that pierces the distant obstruction and at the same time lightens up the ground right in front of the car.

Our Bi-Concentric lens is what does the trick.

BADGER BRASS MFG. CO.

11th Ave., 36th to 37th Sts., New York City

KENOSHA, WIS.

All there is to Prest-O-Lite



A TANK OF GAS—A KEY TO TURN IT ON—A MATCH TO LIGHT IT.

Prest-O-Lite gas is generated in advance, purified, cleaned, cooled, dried and condensed in tanks so it is easy to handle, easy to carry, and always ready for use.

Prest-O-Lite is compressed so you may regulate the pressure to suit yourself. It always gives even, steady, brilliant light.

When the gas in a Prest-O-Lite tank gives out, you get a new tank ready full, for the price of re-charging. Five minutes is enough time for replacing and—there you are, with light enough for as many hours as your tank holds cubic feet of gas (large ones 70 cubic feet, small ones 40).

Write to-day for our book "Ready Made Gas for Auto Lights. It tells how and why Prest-O-Lite does away with all the evils of the old fashioned generator method of making light for a motor car.

Your name and address on a post card mailed to us now will bring you the book at once post paid.

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Over 400 Supply Stations—one in each important city of the United States. Ask for list.

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Recognized as the most satisfactory means of ignition.

Now used and endorsed by 52 of the leading automobile and motor boat manufacturers.

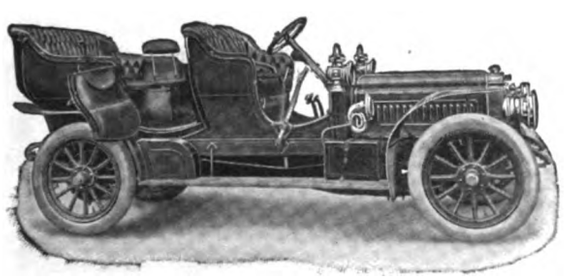
Every battery guaranteed to give satisfaction or purchase money refunded.

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WITHERBEE IGNITER COMPANY

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There is Ne Secret Underlying the Deserved Popularity of



The 50 H. P. Thomas Flyer

$3,500.00

It is the best car, rated by the greatest number of highly standardized essential factors.

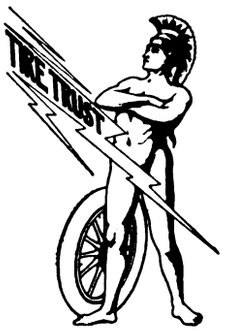
This is literally true, because its combined French and American staffs of engineers have successfully embodied in its construction, all the really vital features that have made for superiority here and abroad.

Write to-day for the beautiful Thomas catalogue.

The E. R. Thomas Motor Co.,

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Members Association of Licensed Automobile Manufacturers.



THE AJAX TIRE

and Tire Material

What do you know about tire material?

The fact that your last tires were advertised as being made of "pure Para rubber" and "Sea Island cotton" didn't help you any when your tire trouble commenced twenty miles from home. It didn't help you any when you tried to get the manufacturer to make good, did it?

Would a cast-iron guarantee have helped?

That is what every Ajax tire carries with it.

A written guarantee that absolutely insures the rider at least 5,000 miles riding.

Is not this **tire insurance** better than the vague and meaningless assurances as to material and workmanship that heretofore you have had to put up with? Doesn't it make it absolutely certain that the manufacturers of the Ajax tire **will** put in the best material and the best workmanship for their own protection?

It's a new policy for tire manufacturers, but it's a a good one and it's an honest one. It's the only policy that gives the buyer **a "square deal" and a "run for his money"—a 5,000 mile "run" at the very least.**

Send to-day for a copy of our guarantee

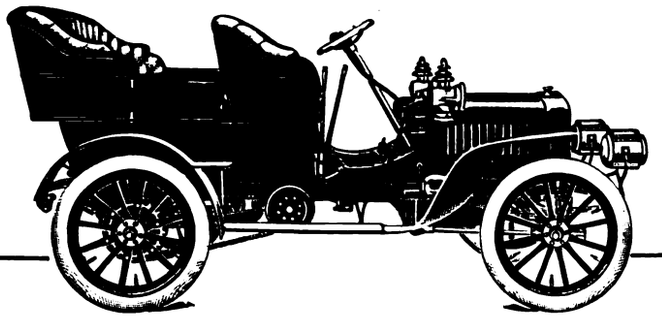
Address Department E

AJAX STANDARD RUBBER CO.

Factory and General Offices

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POPE-TOLEDO

Type X, 20-24 H. P.
Price $2,500

The seemingly complicated mechanical proposition afforded in the study of the modern motor car presents to many prospective purchasers who are not of a mechanical turn of mind, an exceedingly puzzling problem, and oft times the more one's friends are appealed to, the more hopeless seems the possibility of ever arriving at a satisfactory choice, and yet after all, the solution is not as difficult as it seems.

A careful study of **Pope-Toledo** construction, design, etc., will at once convince the purchaser that it is by all odds the best car on the market for the price.

The **Type X is designed** to meet the requirements of those who enjoy the daily use of a dependable and wieldy model. "It runs itself."

ENGINE: Four cylinder, of the four-cycle type, developing 24 B. H. P. **IGNITION:** Jump spark. **CONTROL:** Graduated from eight miles per hour on the high gear to limit of speed, operation is by spark and throttle lever situated on steering wheel. **TRANSMISSION:** Sliding gear, three speeds forward and reverse; direct drive on high speed.

FRAME: Channel steel, of **"Pope-Toledo"** design; light, flexible and strong. **BRAKES:** Main brake on drive shaft; two powerful band brakes on rear wheel.

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Locomobile

Wins Endurance Run of the Albany, N. Y., Automobile Club

Joseph B. Taylor, driving his 30-35 H.P. "Locomobile," won the silver cup donated by Col. A. J. McClure. Over 540 miles through New England without a stop or adjustment.

Also W. L. L. Peltz, driving a 30-35 H.P. "Locomobile," secured honorable mention. 19 competing cars. Two of them "Locomobiles."

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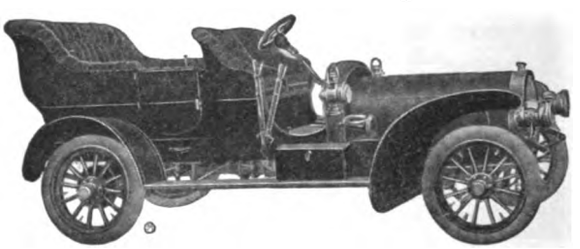
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WORLD'S RECORDS
FOR
1000 Miles and 1094 3/16 Miles in 24 Hours
Made Nov. 17th, 1905

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4 Cyl. 35-40 H. P. $3000. 6 Cyl. 50-60 H. P. $4000.

NATIONAL RELIABILITY AND ENDURANCE ARE HARD TO BEAT.

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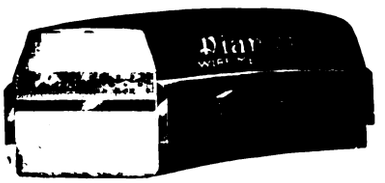
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Made successfully to overcome the numerous weaknesses of the ordinary offerings

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FOR MOTOR TRUCKS AND COMMERCIAL CARS

NO EXPERIMENT: Tested and approved by Motor Truck Builders of national reputation.

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Made of best rubber, by skilled workmen—to wear.

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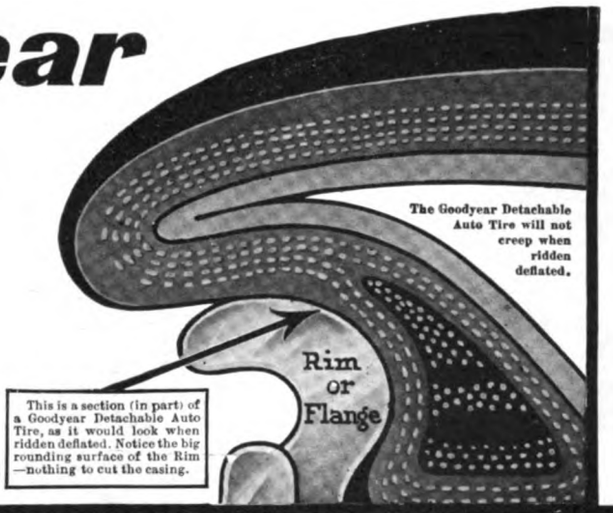
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AUTO-TIRE

ON

Universal Rim

can be ridden deflated for miles over country roads or rough pavements without material injury, for it



This is a section (in part) of a Goodyear Detachable Auto Tire, as it would look when ridden deflated. Notice the big rounding surface of the Rim—nothing to cut the casing.

CAN'T RIM-CUT

The illustration plainly shows why. Call at any of the following stores and learn the dozens of other trouble and time-saving features

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Oakland, Geo. P. Moore & Co., 377 10th St.
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The Goodyear Tire and Rubber Co., Grove Street, Akron, O.

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GLIDDEN 66⅔% GOODRICH

Records are made *at the end* of a contest and the only per cent. mark that counts is the one that shows final achievement.

In the contest for the Glidden Trophy 13 cars finished with a clean score, 9 of which were equipped with Goodrich Tires.

In the contest for the Deming Trophy 2 cars finished with a clean score, one of which, White Steamer, driven by Mr. August Post was equipped with Goodrich Tires.

TOTAL—

15 cars showed a clean score.
10 or 66⅔ per cent. equipped with Goodrich Tires.
5 or 33⅓ per cent. divided between all other makes.

Of the 10 clean score cars showing Goodrich Tire equipment 6 used Goodrich Quick Detachable Construction.

THE B. F. GOODRICH COMPANY, ▪ ▪ ▪ Akron, Ohio

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

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At this stage of automobile development, the power transmission by chain is most popular.
Properly cut sprockets, and the best and strongest chain in the world.

THE BRAMPTON



Which is made of self-hardening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

The matter of repairs and replacements is simple.

YOUR CHOICE.

The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars. **Special chains to fit Indian motorcycle.**

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To prevent tire troubles equip your motor car with

G & J Oval Raised Tread Tires

and ride in

SAFETY AND COMFORT

We shall be pleased to furnish you some interesting information regarding the strength, durability and good service of these tires.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

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If you have not already done so,

Now's the Time

to get in line for

Whitlock Coolers for 1907

There was never a time when

Their Supremacy

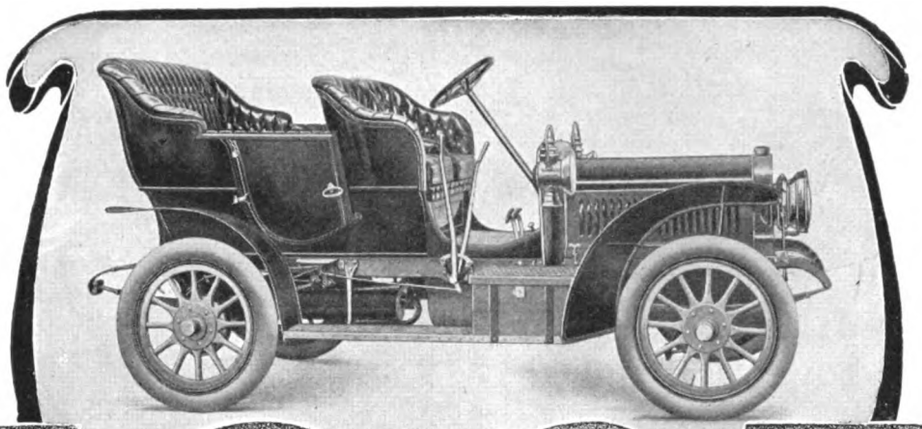
was so manifest and so generally recognized; and there was never a time when we were so well equipped to maintain the supremacy and to render prompt service.

We also manufacture disc radiators, hoods, exhaust and inlet pipes and headers, muffler pipes, and bent and brazed work of every description for automobiles.

We are ready to make quotations, and give satisfactory attention to your wants.

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Now Ready!

Cadillac supremacy once more asserts itself in the announcement that Model H, the final and perfected four-cylinder car for 1907, is ready for immediate delivery.

In improvement and mechanical finish this magnificent car out distances by at least two years any other car on the market. It has new features, but every one of them has been thoroughly tested and tried by months of severe service.

Its tremendous power makes it a veritable wonder in hill climbing; countless miles of travel over the roughest mountain roads in the country without balk or delay prove its never-failing dependability. *An automobile whose smooth and well-balanced action is almost marbelous when compared with what has heretofore been accepted as the highest type of motor car.*

Among the many features of the 1907 Cadillac are ease of control, due to our perfect planetary transmission; a marine type governor, regulating the speed of the engine under all conditions; a new and exclusive double-acting steering device that greatly increases safety; an independent steel engine suspension, which maintains perfect alignment of motor and transmission at all times, saving much strain and wear.

Model H is practically noiseless in operation; embodies the maximum of comfort in riding. **30 horse power;** capable of fifty miles an hour. Price, $2,500.

Enjoy a demonstration by your nearest dealer. His address and descriptive booklet sent on request.

Other Cadillac models are: Model K, Runabout, $750; Model M, Light Touring Car, $950. All prices f. o. b. Detroit and do not include lamps.

CADILLAC MOTOR CAR COMPANY, Detroit, Mich.
Member Asso. Licensed Auto. Mfrs.

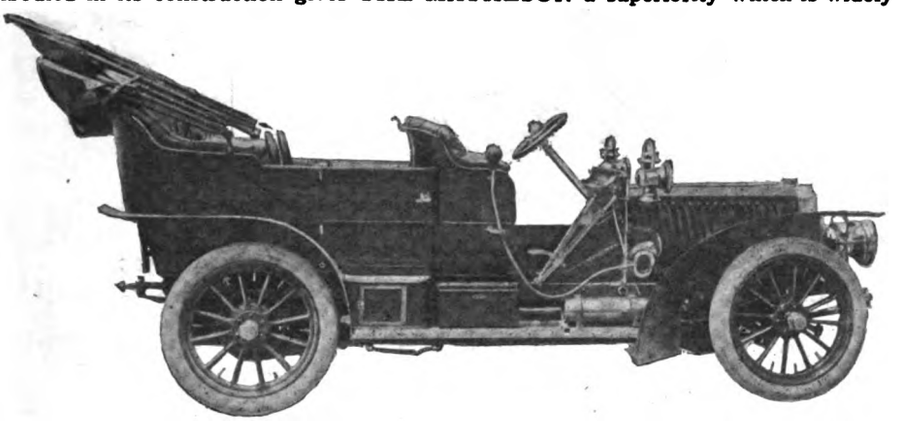
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Matheson Touring Cars

IMMEDIATE DELIVERIES

The value of this high-grade American product depends SOLELY upon its quality and workmanship. The latest practical improvements embodied in its construction gives THE MATHESON a superiority which is widely recognized.

40-45 H. P. $6,000



60-65 H. P. $7,500

LEADING FEATURES

Motor—All valves on top which never need re-grinding. Chrome-nickel steel in transmission gears and shafts.

Ignition—Make-and-Break, with magneto, which eliminates the use of spark plugs and vibrating coils.

Speed—60 miles an hour guaranteed. EVERY CAR IS FULLY EQUIPPED

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Philadelphia Branch—The Bellevue-Stratford Garage.

LICENSED UNDER SELDEN PATENT

SEE What the $1800 Mitchell Did

Right Lately, Too— Not Months or Years Ago

May 30, 1906—Won Minneapolis Hill Climbing Contest, winning silver cup. One Mitchell entered. Defeated Oldsmobile (4 cyl.), Ford (6 cyl.), Franklin, Rambler, Queen, National, Frayer-Miller, Marmon, Thomas and Royal Tourist.

July 4, 1906—Won 100-Mile Endurance Race, breaking World's Record, at Hawthorne Race Track, Chicago, defeating cars at more than double the price. The one other Mitchell entered, finished second.

July 7, 1906—Won 50-Mile Endurance Race at Milwaukee, again breaking the World's Record, and still again defeating high priced cars. One Mitchell entered.

July 20, 1906—Won 50-Mile Endurance Race at Detroit, making single miles as low as 1:08, which is World's Record for stock cars fully equipped. This has alone been equalled by the 50 h.-p. Thomas Flyer. The one other Mitchell entered, finished second.

In the last three contests the Mitchell defeated the following cars: Queen, Jackson, Thomas, Maxwell, Columbia, Knox, Buick, Haynes, Pope-Toledo, Pope-Hartford, Peerless, Rambler and Cadillac.

July 27, 1906—Elgin-Aurora Endurance Contest. Two Mitchells entered. One finished with *perfect score*. The other was penalized for mistake of the driver. Dozens of high priced cars fell by the wayside or were heavily penalized.

All With Stock Cars — Right Off the Selling Floor

Doesn't this cover what you want in an Automobile?

The ability to go up almost any hill on the high speed—

The ability to go hundreds of miles over any kind of a road without a hitch or worry of any kind.

The ability to go almost anywhere at all speeds from 8 miles to 45 miles per hour on on the high gear.

In a word—Satisfaction, Power, Speed and Freedom from Trouble.

Is it not a fact that it is a waste of money to pay $2500 to $4000 for a car, when the Hardy, Powerful, Troubleless Mitchell at $1800 has demonstrated its superiority in every test, no matter how severe—not years ago, but RIGHT NOW.

The Mitchell is a "Show me" car. Whenever you are ready we will take you in the *car you are to get* and show you what the Mitchell will do on hills, in deep and, on country roads—any test you like.

We'll PROVE to you that, in actual use on the road, the Mitchell represents the ideal you have had in your mind when thinking of an automobile.

If it doesn't meet your ideal in every particular—no matter how severe the test you wish it subjected to—then simply don't buy it.

Tell the man at any Mitchell Branch how you wish to be "shown." If any car can do your "stunt," the Mitchell will do it better, and you can see it do it *yourself*.

MITCHELL MOTOR CAR CO. 104 Mitchell Street, Racine, Wis.

Member American Motor Car Manufacturers' Association, N.Y.

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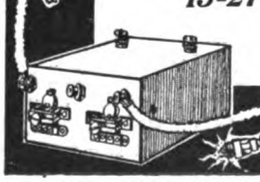
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1,134 MILES ON SCHEDULE and NEVER VARIED A MINUTE



The Deming Trophy

The "Maxwell"

Four Cylinder Car

WON THE DEMING TROPHY

with a PERFECT SCORE

CHICAGO RELIABILITY RUN, 86 cars started, of which Four were Maxwells, 32 cars finished with perfect scores,
Four of which were Maxwells
(One MAXWELL driver arrested and fined two points which were rescinded afterwards)
Figure it out yourself
In the **LOS ANGELES - EL PISMO ENDURANCE** Contest

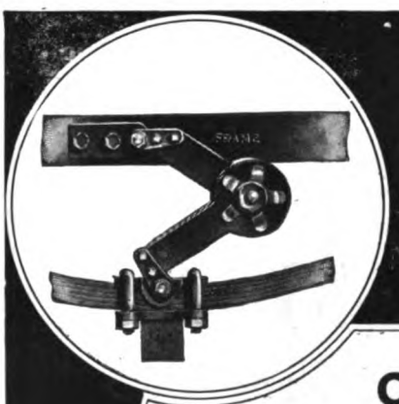
FIRST HONORS AWARDED THE MAXWELL

106 cars started; the largest contest ever held in America.
There's a reason for all this. IN CONTEST AS IN CONTENTMENT
MAXWELLS EXCEL

You will be in debt to your good sense if you don't investigate
Maxwell cars bought now are up-to-date for years to come. Maxwell cars are sold under the positive guarantee that
AS GOOD A CAR CANNOT BE SOLD AT A LOWER PRICE

Write to-day for a catalog to Department 2

MAXWELL-BRISCOE MOTOR COMPANY, Tarrytown, N. Y. Chicago Pawtucket
Members American Motor Car Manufacturers' Association.



TRUFFAULT-HARTFORD
SHOCK ABSORBER
TRADE MARK

GLIDDEN TOUR VICTORY FOR TRUFFAULT-HARTFORD SHOCK ABSORBERS

As in all the big racing and touring events of the past two years, Truffault-Hartford Shock Absorbers scored a signal victory in the recent Glidden tour of the A. A. A.

Three Pierce Cars, Equipped with Hartfords, made perfect scores. An unequalled percentage. So did the Columbia, driven by Barrett.

Of 20 cars Using Shock Absorbers, 16 Had Hartfords. Another make had two, and two other makes each one.

HARTFORDS WERE EQUIPPED ON THE FOLLOWING CARS IN THE CONTEST

Pierce White Columbia Locomobile Buick Corbin
Stevens-Duryea Cleveland and Packard

No Broken Springs or Bent Axles and Very Little Tire Trouble on Cars Equipped With the Pioneer Shock Absorber.

Cars under 1,500 lbs., $40 (Four Suspensions).

HAVE YOU A SET ON YOUR CAR?

Cars over 1,500 lbs., $60 (Four Suspensions).

Adopted by Pierce Great Arrow, Locomobile, Brasier, Peugeot, Napier, Aerocar, Grobon-Brille, Rossel, Mathewson and Studebaker, Watson-Canover and Stevens-Duryea.

New Model, Self-Adjusting **IMMEDIATE DELIVERIES** **Needs No Attention After Application** **Postal Brings Booklet**

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IF YOU USE SELL HANDLE GASOLENE

You are not safe from explosion unless you use

THE SNELL HYDRAULIC SYSTEM

Approved by the Board of Fire Underwriters, the Board of Health and the Fire Department.

Gasolene cannot explode unless mixed with air.

The SAFETY TANK is the only tank which is always filled with liquid; gasolene or water or gasolene and water (they can not mix). Any other tank admits air as the gasolene is drawn off and immediately becomes an acute source of great danger. The air also evaporates the most vital part of the gasolene and leaves the remnant with less power units. In the SAFETY TANK these dangers can not happen because no air can get in as the tank is always full of liquid. The Board of Fire Underwriters recognizing the absolute safety of our tank give the users of it a minimum rate of fire insurance. Write us for free descriptive booklet. It will save money for you.



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Central Building, 25 West 42nd Street, New York.

Heavy Cars, Light Cars, Racing Cars or Touring Cars are but half equipped if not furnished with

MICHELIN TIRES

and are not giving the best service they are capable of.

Put them on your car and you will learn what a **"MICHELIN MILE"** means.

MICHELIN PRODUCTS SELLING CO.

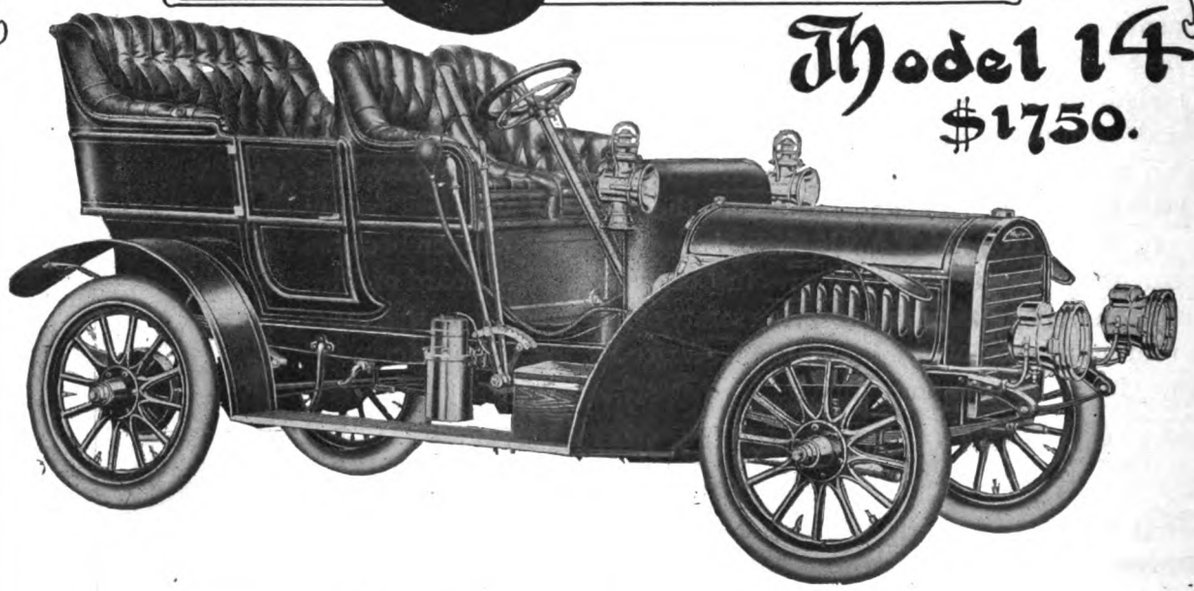
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Rambler

Model 14
$1750.



A medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, August 16, 1906. No. 11

WOOSTER WAS A WISE ONE

He Scored a Handsome Failure Which Investigator Insinuates was "Hatched."

Examination into the affairs of William Wooster, who although doing business in a cellar on Warren street, New York, managed to fail for $18,000, is disclosing a pretty state of affairs.

Wooster, who mingled automobile tires and accessories with bicycles and bicycle sundries, posed as a jobber and included several automobile concerns on his list of creditors. The petition to have him declared a bankrupt was filed by the Manhattan Storage Co., by Simon Goldberg, who is or was an employee of the so-called storage company, and H. L. Stanley, who is said to be a pawnbroker or money lender. Although Wooster professed to be shocked by the action, not a few of his creditors allege that it was a purely friendly proceeding pre-arranged with the Manhattan Storage Co. He offered them a settlement of 25 per cent., 10 per cent. in cash and 15 per cent. in notes indorsed by his father and brother. It was declined, pending an investigation by a creditors' committee which, however, found his books in such shape as to render an accurate accounting impossible. At their request the receiver ordered an examination which began last week. Wooster, however, had not been properly subpoenaed and did not appear, but the flaw was waived and he was adjudicated a bankrupt, William L. Allen being appointed referee. An adjourned hearing will take place to-morrow, if Wooster is found.

To date the probing has disclosed that within 48 hours of his failure, Wooster had executed to his father a bill of sale of a store he conducted in Brooklyn and that his brother, Ernest, maintained an establishment in Harlem, which had been purchased by the father with the bankrupt's money and then conveyed in William's name to Ernest while William was abroad.

Wooster's lawyer, one Kahan—who said he had never seen his client but once—and the Manhattan Storage Co.'s counsel, both of whom are near neighbors in the same office building, were, of course, present at the examination, and were placed on the stand. But even the suggestive question, "Is it not a fact that this whole business was hatched between you in the office of the attorneys for the petitioning creditors?" failed to bring out any satisfactory information.

Spiers Becomes Corbin's Superintendent.

John C. Spiers, than whom few factory men are better known or have had more experience, is back in New England again—this time as factory manager of the Corbin Motor Vehicle Co., New Britain, Conn. Only recently Spiers became superintendent of the Wayne Automobile Co., in Detroit, but the opportunity to return to New England, his old home, was too strong to be resisted, and on their part the Corbin people were anxious to get him because of his reputation as a producer. It will be their aim to have at least 500 cars ready and delivered previous to June 1st next.

Funke Sues for His Lamps.

Deputy Sheriff Murray, of New York, has received two writs of replevin, one for $10,000 and the other for $7,000, against Luigi Anginelli, a manufacturer of automobile lamps, at 432 East Seventy-first street, New York City, both in favor of Albert H. Funke. The complainant claims ownership of articles called for in the writs, which include a lot of materials, 1,600 lamps and 100 acetylene generators.

Niagara Falls Meeting is Off.

The Niagara Falls meeting of the Association of Licensed Automobile Manufacturers which was fixed for August 23rd and 24th, has been indefinitely postponed. After the call was issued, it was discovered that so many of the interested men were taking vacations or about to take them, that it was quickly seen that there would be too many absentees to make the meeting worth while.

"KENNEDY" IS CAUGHT

Perigrinating Swindler "Tries" Toledo and is Undone by a Garageman.

Former Sheriff William H. Keeler, of Albany county, New York, will undoubtedly now be able to rest easier; his "phantom automobile" has exploded and his imaginary chauffeur who has been flitting about the country piling up bills for the sheriff, is behind the bars. His capture was effected in Cleveland, Ohio, last week, after he had "stung" Manager Thomas of the Weed garage, Toledo, to the tune of $130.

As was detailed at length in last week's Motor World, former sheriff Keeler has long been known as the possessor of houses, lands, hotels, restaurants and many other goods and chattels, but he had never owned a big touring car, at least he had supposed this to be the case, until one day he received intimation from New York that he had been there the day before, and that his chauffeur, "Mr. Kennedy," "Mr. Douglass," or vice versa, as the alias suited, had purchased quite a number of supplies, which the dealer "had been assured that the chauffeur's employer, Mr. Keeler, would be only too happy to pay for, upon presentation of the bill."

A few days later the sheriff learned that he had been in Buafflo, or at least his chauffeur had, and had piled up a bill in that city for supplies. Almost before he had time to recover from his surprise, Mr. Keeler discovered that he had been in Detroit. There his "man," "Douglass" or "Kennedy," had bought a few more perquisites and including his "lodging," the bill footed $128, which Mr. Keeler would "please oblige by paying." Then Mr. Keeler began to wonder where his "tour" would lead him next. It seemed akin to the Arabian Nights' carpet yarn, only the Albanian did not have the satisfaction of being whisked anywhere by merely wishing. Instead, he was reminded every few days that he had been in this city, that

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city, or the other city, by the bills his peregrinating "chauffeur" had been piling up.

The "con" man was next heard of in Toledo where he won the confidence of Manager Thomas of the Weed Garage. His story was the same that had buncoed dealers in other cities and to the effect that his employer, Mr. Keeler, had broken down at Belleville, and would Mr. Thomas please let him have a few little things. Mr. Keeler had most regretably run short of cash but would Mr. Thomas cash his check for $130. The check was indorsed by Keeler apparently in the same handwriting as that in which Kennedy's name was signed, which led the cashier of the Dollar Savings Bank to question the validity of the check when it was presented a short time after the sale of the tires and other things by Mr. Thomas. "Kennedy" was intercepted at the Union depot by Thomas and two officers, but he told Thomas such a plausible story that he let him go. Before the train pulled out, however, the garageman began to have his suspicions and he told the brakeman to wire if "Kennedy" got off the train at Belleville, where his "employer's machine" was supposed to be disabled. The brakeman wired back that "Kennedy" was still on the train, and Detective Hall who had accompanied Thomas to the train wired the Cleveland officials to arrest and hold "Kennedy" as he left the train in that city.

This was done and "Kennedy" is now in Toledo. After the Toledoans get through with him there are other dealers in cities nearer the Atlantic coast line who will probably like to see him. In the meantime, Mr. Keeler, of Albany, trusts he will not receive any more bills in conjunction with his imaginary continental automobile tour.

Branch Managers Form an Association.

Philadelphia has a new automobile organization, the Automobile Manufacturers' Representatives' Association, but as yet the reporters of that village have not succeeded in ascertaining for what purpose it was formed. The first meeting was held on Friday night last, but the proceedings were kept secret, not even newspaper men being admitted. The officers of the organization are as follows: President, George H. Smith, of the White Company; vice-president, F. C. Vanderhoof, of the Ford Motor Car Co.; secretary-treasurer, L. J. Morse, of the Locomobile Company of America. These officers, together with R. H. Blake of the Knox Company, William F. Smith of the Rambler Company, and A. E. Maltby of the Winton Company, compose the board of directors.

J. P. Bruyere, who has obtained the American agency for the Mieusette car, has established himself at 1853 Broadway, New York. The car, which is a French product, incorporates some ingenious features, and runs with uncommon "sweetness."

The Week's Incorporations.

Cleveland, Ohio—Curtin-Williams Automobile Co. increases capital stock from $5,000 to $20,000; Thomas Curtin assumes presidency.

Boston, Mass.—Holmes Motor Vehicle Co., under Massachusetts laws, with $100,000 capital. President, V. W. Keith, East Bridgewater; and treasurer, M. A. Flavin, Boston.

Akron, Ohio.—Union Automobile Garage Co., under Ohio laws, with $5,000 capital. Corporators—E. D. Valentine, L. G. Martin, Claude L. Calbtzer, F. E. Hilbert and G. S. Cox.

Trenton, N. J.—Trent Auto and Supply Co., unded New Jersey laws, with $10,000 capital; to deal in automobiles and supplies. Corporators—J. F. Toman, J. P. Toman, and M. M. Toman, all of Trenton.

Los Angeles, Cal.—Pacific Motor and Automobile Co., unded California laws, with $75,000 capital; $300 subscribed. Corporators—H. L. Boyer, W. B. Harrington and M. C. Tunison, all of Los Angeles.

Montclair, N. J.—De Voll Tire Co., under the laws of New Jersey, with $250,000 capital. Incorporators—C. H. De Voll, New York; H. S. Howland, Montclair, N. J., and J. J. Halleran, Flushing, New York.

St. Louis, Mo.—Lakadel Automobile Co., under Missouri laws, with $15,000 capital, fully paid; to deal in automobiles. Corporators—W. G. Rea, 100 shares; J. A. Prescott, 49 shares, and G. B. O'Reilly, 1 share.

Elizabeth, N. J.—Elizabeth Motor and Cycle Co., under New Jersey laws, with $2,000 capital; to deal in bicycles, motorcycles and automobiles. Corporators—M. S. Ross, J. S. Henderson and A. H. Foote, all of Elizabeth.

Baltimore, Md.—Maryland Motor Association, under Maryland laws, with $1,000 capital; to hold automobile, motorcycle and motor boat races and exhibits. Corporators—Howard A. French, Howard W. Gill, Robert H. Carr, Wallace C. Hood and Jesse L. Cassard, Jr.

In the Retail World.

A. P. Stoddart & Co. have opened a garage at Gloucester, Mass. The Mitchell car will be the firm's leader.

F. A. Freeman is erecting a two-story stone garage at Elizabeth avenue and Irving street, Newark, N. J. Its dimensions are 40x60 feet.

G. A. Steiner is preparing to build a two-story brick garage at Sheridan avenue and Bryant street, Pittsburg. The approximate cost is $15,000.

There is now a full-fledged garage fronting on the Vanderbilt cup course on Long Island, which, incidentally, is the well-traveled Jericho turnpike. It has just been "opened up" at Mineola by the Mineola Motor Car Co.

The American Automobile Co., Cleveland, Ohio, has contracted for the erection of a two-story garage on the corner of St. Claire avenue, N. E., and Ontario street, that city. Its dimensions will be 122x114 feet.

The Holcombe Automobile Co., New Haven, Conn., will erect a new garage adjoining their present building. The new structure will measure 50x65 feet and will cost $2,000.

The New York and Brooklyn Automobile Supply Co. is the style of a new concern which has established itself in the jobbing business at 1693 Broadway, New York. The principals are David E. Hydecker, formerly with E. J. Willis, and John F. Boh.

For the occupancy of the Zorn-Straus Automobile Co., a two-story fireproof garage is to be erected at Broadway and Second street, Louisville, Ky.; it will measure 120x130 feet and contain a tire vulcanizing plant, among other things.

To enlarge the one-story garage of the New York Edison Company, on Forty-first street, near First avenue, New York City, three additional stories will be built. The improvements will cost $70,000, according to the plans filed this week.

C. Edward Born, C. Christ Born and Carl J. Hoster have purchased the controlling interest in the Curtin-Williams Automobile Co., Columbus, Ohio, the capital of which will be increased to $25,000. The garage and salesroom will be continued at its old location.

The Acme Garage, Harry Hurley, manager, opened for business at 1210-12 Tacoma avenue, Tacoma, Wash., last week. The building is of brick and has 100 feet frontage. It is well equipped throughout and is claimed to be one of the model garages of the northwest.

The Lavinge Mfg. Co., Detroit, Mich., who make a lubricator for automobiles, have begun the erection of a two-story factory building at Commonwealth avenue, at the railroad crossing. The building will be of brick and measure 75x125 feet. A foundry, 60x75 feet, will also be erected.

The King's County Automobile Co., 1011 Greene avenue, Brooklyn, N. Y., of which H. Aufderheide was president and H. W. Palmer, secretary-treasurer, has been purchased by H. C. Bohack and associates. They will continue the business under the old name and at the Greene avenue address and are already making a number of improvements.

Suit Over Gasolene Gauges.

A bill of complaint was filed on Friday of last week in the United States Court at Boston, by the Boston Auto Gage Company, of that city, manufacturers of gasolene gauges for use in automobile tanks, against the Iver Johnson Sporting Goods Company. The bill charges that the Iver Johnson Sporting Goods Company are selling automobile tank gasolene gauges in infringement of United States patent owned by the Boston Auto Gage Company, and seeks an injunction and an accounting for damages and profits.

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BOTH INVENTORS LOSE

They Used Same Language and After Hard Fight, Invention is Ruled Out.

In the interference case of Podlesak vs. McInnerney, the decision just rendered by the United States Commissioner of Patents is of interest as bearing upon the often litigated subject of claims couched in identical language by two inventors seeking patents, both where the proposed subject of the patent is the same in each case or where it differs. The invention involved is that of a new form of make and break low tension electric igniter for motors and the case has already been to the court of appeals from which it was remanded to the commissioner for further consideration concerning the question of identity of invention. The case has been hard fought, but despite the fact it finally has resulted in a "water haul" for both fighters.

The decision remanding the case sets forth at some length the history of the interference in the patent office. Priority of invention was awarded to McInnerney in the first instance from which an appeal was taken and in this manner the matter came up for decision by the commissioner a second time, the court confirming the award to McInnerney but wishing further consideration in the matter of identity of invention as already mentioned.

Before reaching the court of appeals the history of the application is equally checkered. The Primary Examiner held the issue to be unpatentable; he was reversed on the ground that the "blow" referred to in the claim must be a "contacting blow" and that the device of the reference brought the electrodes into contact without any blow from the armature. It is this "contacting blow" which apparently gives novelty to the issue. It is referred to in the appellant's specification as the blow which "causes the contact points to come together, driving out from between them any dirt or soot that may have accumulated from the explosion of the charge in the engine cylinder."

The commissioner's opinion, which also sets forth the claims of the applicants, is in part as follows:

"Each of two applicants for patent has made a claim in identical language. The claim reads without violence to the proper natural meaning of its terms upon the devices disclosed by each party; but the patentable invention which this claim is supposed to represent is found only in the device of one of the parties. Clearly under these circumstances, the claim fails to define that invention.

"The whole difficulty seems to be one of construction of the issue. The uncertainty arises in connection with the words 'contacting blow.' In the device of each party a blow is given by an armature to a movable electrode for the purpose of obtaining electrical contact. To this extent, the structures, operations and results of the two devices are the same. The words 'contacting blow' as used in the issue refer to this common matter and have, so far as I am able to determine, exactly the same significance when read in either case. It is true that the blow is given under specifically different conditions in the two cases, and the whole purpose of the Podlesaks in regard to the contacting blow of their device may be beyond anything sought by McInnerney. Nevertheless, had the parties created their respective devices entirely without knowledge of prior devices, each would have been an inventor of means whereby a armature strikes a movable electrode to secure a contact. To this extent the respective devices present the same subject matter of invention and, except for prior devices, would be capable of supporting a generic claim. The claim in issue is to my mind such a claim. It defines matter common to the two cases, but that matter is not patentable."

Long Test for a Truck.

A long distance trip to demonstrate the efficiency of the motor truck—if such a demonstration is needed—is being executed by the Kansas City Motor Car Co., of Kansas City, Mo. On Tuesday of this week General Manager George K. Wheeler and Vice-President J. E. Caps, with two chauffeurs and several disinterested observers, were scheduled to start from Buffalo with a loaded two-ton truck. The itinerary embraces New York City, New Haven, Conn., Providence, R. I., and Boston, a distance of about 850 miles. The schedule is for the truck to reach the Hub on August 22.

Corbin Takes Over Kimball's Store.

The Corbin Motor Vehicle Co. have taken over the lease and store of their New York agents, the E. T. Kimball Co., 1779 Broadway, and henceforth the place wil be conducted as the Corbin branch. Lafayette Markel, for several years connected with the Corbin factory at New Britain, Conn., will be in charge. The Kimball Co., who maintained a store in Boston also, will continue to handle the Corbin car there, Mr. Kimball himself removing to the New England metropolis and taking with him several of his New York employees.

Leather Tires for the West.

Having made progress in the East, the Healey Leather Tire Co., New York, is now intent on enlightening the Western half of the country as to the advantages of their leather tire. To that end, Frank W. Wood has departed for a "swing around the circle," which will include all of the Western centers, including Denver, San Francisco, Los Angeles, Portland, Spokane and Seattle. Wood will be absent on his mission four months and expects to make a thorough job of it.

WHY THE SCHOOL CLOSED

"Teachers" Came from New York to Instruct Ohio Chauffeurs and then—.

The twenty-five young men from the rural districts who, wishing to travel through life at the steering wheels of automobiles instead of behind plowshares, gathered last Friday night in front of the garage of the Automobile Commission Co., on East Seventh street, Cincinnati, Ohio, in expectation of receiving instructions as chauffeurs were disappointed, both at not receiving their instructions and at the loss of their hard-earned tuition fees. Instead of finding their instructors they found the place in the hands of the sheriff, who had attached the property at the instance of the D. T. Williams Valve Co., who allege that Messrs. Pulsifer and Walliston, the proprietors, are indebted to them $163.

The young men who established the business came to this city from New York, believing that it was a rapidly developing automobile field. They advertised that they would teach young men how to become chauffeurs for the consideration of $25. The majority of those who answered the advertisement were young farmers, who had become tired of following the horses, and who were longing for a faster life. It is said that Pulsifer and Walliston succeeded in enticing 100 of these students and extracting $25 from each.

About a week ago the young men jumped into the best automobile they had in stock and left word at the garage that they were going to Latonia. They failed to return, and since then several men carrying collectors' wallets have been besieging the establishment and have strained their eyes looking in the direction in which the New York instructors said they were going.

What the Pyrometer Discloses.

Tests with the pyrometer seem to prove some of the old standard text books at fault in the matter of the melting points of various metals. In some cases the variations shown are slight, but in others they are substantial. For instance, the melting point of tin is given as 446 Fahrenheit in a well-known engineer's text book and is shown by the pyrometer to be 449 degrees —a difference of small moment in any case. The same text book gives the melting point of aluminum as 1,300 degrees, whereas the pyrometer records it as but 1,214, and a wider discrepancy is found to exist between the generally accepted melting point of nickel which is 2,810 degrees and that of 2,600 shown by the pyrometer. Probably the widest variation is to be found in the case of antimony which the text books state as 810 degrees, whereas experiment showed it to be not less than 1,169 degrees Fahrenheit.

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Much has been written and printed concerning the care and use of tires for automobiles and much misinformation has been circulated.

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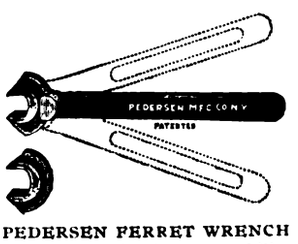
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One-Sided Illumination.

Why the Royal Motor Car Commission of Great Britain should have seen fit to set itself on record as opposed to the enforcement of universal lighting of all vehicles on the public highroads, is utterly incomprehensible and only half excused by the traditionary lack of such a measure.

Any motorist who, driving over a country road in the darkness has suddenly come upon a lumbering vehicle drawn by the silent plodding horse, cannot fail to recall with vivid terror the instant tingling grip of every nerve in the body at the spectre. With light horsed vehicles, the driver is partially guided by the instinctive precaution of the beast. But the driver of the motor vehicle has no such defense from the peril—a peril which is as constantly imminent as it is occasional. And since the drivers of such vehicles as constitute this peril cannot be relied upon to have the wit to protect themselves and the public by showing a light in both directions at all times, it becomes evident that the only alternative in securing the safety of all is to compel them to do so, unpleasant though the remedy may seem.

The Short Cut to Perfection.

Of course, the American Automobile Association is not perfect, nor are the men who direct its affairs. The Glidden tour again called attention to the saddening fact.

Perfection in men and affairs, however impossible of attainment, is, nevertheless, worth striving for. After careful perusal aind digestion of all that has been printed concerning the A. A. A. and its management, we are about convinced that the sure way to perfection requires a change of officials and that the two men whom the two chief offices are now seeking stand out as clear cut and distinct as the lamp-posts of London on a foggy day. We therefore offer no apology for thus early placing them in nomination:

For President—
J. Hammerhard Gerrie.

For Secretary-Treasurer—
Alphonse G. Schwartzkopf.

Mr. Gerrie is the American automobile attaché of M. James Gordon Bennett, occasionally in New York, usually of Paris. He long has been a close student of the A. A. A. and has left few stones uuturned in the pursuit of his studies. Ever since a frictional episode of a few years ago, he has kept a pile of the stones within easy reach. Mr. Schwartzkopf is a fluent writer, an unusually entertaining—almost an entertainment speaker, and a noted financier. For an extended period he carried a large part of the Eastern hemisphere on his shoulders but during late years he has made the automobile part of the United States his voluntary burden.

With these gentlemen in command and surrounded with kindred spirits of their own selection, we are sanguine that the American Automobile Association will at once become the model organization of the universe. Obnoxious laws will be swept away, a good road will be served to every member for breakfast each morning, all hills will be leveled, every cross-road will become a dustless boulevard and the highway from New York to San Francisco be asphalted, while such events as Vanderbilt races and Glidden tours will be so conducted that each participant will win the trophies and no room be left for kicks, complaints, irritations or shortcomings of any sort by any one.

Gerrie and Schwartzkopf—that's the ticket! The Motor World moves that nominations be closed.

Driving Direct on the High.

While the use of the direct drive high gear in transmissions is being so amiably floated, and from every quarter are coming reports of marvelous non-stop high-gear runs in which the wonderful flexibility of control of this or that motor has been demonstrated with spectacular effect, it is becoming evident that a tendency is being developed among the less experienced class of drivers, which is likely to prove of considerable injury to the trade, unless checked by a certain amount of rational counter sentiment. For the natural result of examples of this class of driving will be to stimulate drivers who do not thoroughly understand their machines to attempt the same sort of thing with the effect of straining or otherwise misusing them. However useful may be such demonstrations in proving what may be done under favorable circumstances and with expert handling, there is danger that a false impression will go forth as to what can be done by the average driver under average circumstances.

As a matter of fact, most of these performances smack of legerdemain, and would prove to be almost, if not quite impossible of achievement by the man in the street. The most delicate of manipulation, coupled with absolute knowledge of the course as well as the limitations of the machine, make them easy to the men who carry them out. Yet how much the life of the machines is shortened, even with the best of care, by the test, is never revealed. That the wear and tear is greater than it would be under the more common method of driving at fairly constant engine speed, seems to be a natural conclusion.

Of course, so long as the engine is not allowed to labor, it cannot affect materially its condition to run it faster or slower than its normal rate. Yet comparatively few amateur drivers learn to watch for signs of laboring until after several years of thoroughgoing experience. On the other hand, so long as the car will run, it is not considered necessary to change gear, or alter the conditions of the drive in any way. Yet it has been proved over and over again that the internal combustion engine is particularly susceptible to careful handling

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and rewards the observing driver fully for his vigilence by its long term of uninterrupted service. That being the case, it should be the aim of every manufacturer and dealer to promulgate among his customers a comprehension of what is best for the machine and how it can be handled most economically, rather than what it can be made to do under presure.

In this, there is no word of argument against the use of the direct drive, nor of the development of motors having a wide range of useful speed. Rather, is intended a warning against their extravagant use, and especially against the application of the results of special performances to trade talk in a misleading way. Economy is a word which, unfortunately is distasteful to many motorists. Yet economy as applied in engineering parlance, implies simply getting the best out of a thing, instead of literally working it to death. And the maker who teaches the best and wisest use of his cars to his customers, will find them enduring longer and standing better in the community than those of the other who plays up what can be done under stress of circumstances, as of every day occurrence.

Air Pumps for Tire Inflation.

An idea that naturally suggests itself in view of the many attempts to employ air pumps driven by the wheels of the car or by the engine in some temporary and half-hearted manner such as that put forth in the invention described elsewhere in this issue, is Why not use compressed air on the car in the shape of a permanent installation?

Why not, indeed? "There appears to be absolutely no good reason why an air pump and tank should not be installed on cars of the type in which no expense is spared to make them everything that ingenuity can devise in the way of comfort. Not that the cost of such an addition makes it a luxury only enjoyable by the owner of the high-priced car, for such is not the case, but that the makers of such cars are more inclined to take up such innovations in the first instance than those who market their product at a considerably lower figure.

An air pump of the size required is a mighty small thing by comparison with the average motor and neither the space necessary for its installation nor the connections to run it need bother the designers of any cars now most in demand. And the same is true of the tank. It is not merely as a means of avoiding the labor of inflating the tires by hand that an available supply of compressed air would be valuable on the car. It could readily be made to solve the problem of self-starting as is done in the case of large stationary gas engines, by introducing the compressed air directly into the cylinder until the engine takes up its regular cycle of operations, it can be used to blow out clogged oil ducts, to clean the upholstery of the car, not to speak of half a dozen other offices it may be made to perform.

The reasons for not having made such an innovation already are many and manifest. First and foremost, the designer has been so engrossed in perfecting the motor that practically everything else has formed a secondary consideration. It would hardly be natural to suppose that the men who were struggling with the apparently unfathomable mysteries of the gasolene motor could be induced to regard in a favorable light anything that at the time, only promised to add to the complication. But that period having become a reminescence with the majority, such obstacles have been swept away. There appears to be no reason why compressed air should not now be employed as an auxiliary on the up-to-date car. Except in the case of the popular priced vehicles on which first cost must be kept down to a minimum, the added expense should form no deterrent. While it does not seem to have come in for any great amount of serious consideration up to the present, not having been employed in more than one or two instances, there seems to be little doubt that in time its value will meet with general recognition.

Glass on the Streets.

One of the most annoying circumstances of the automobile driver's existence, is the transient flicking of the sunlight upon stray particles of broken glass lying in the road. Usually they do not appear soon enough to give him warning of their presence in time to avoid them. There is an impression of helpless disgust, a sickening crunch under the tires, and that is all. Or possibly, on impulse, a quick swerve is made and if running rapidly the machine all but topples over into the gutter. Seldom, however, does it happen that the crunching sound is missed, no matter how much out of the ordinary track the peril may lie.

There are plenty of local statutes prohibiting the casting away of broken glass in the streets. Unfortunately, however, prosecutions seem few and far between, and numerous though the infractions may be, what convictions are landed, seem not to affect the practice one way or the other. On the other hand, it is fortunate that the areas where broken glass is likely to be discovered usually are limited to the streets of towns and villages. Here the motorist is restricted by law, caution and decency, to maintain a moderate rate of speed, and when so doing, can in many instances avoid the danger of injury to the tires by skillful driving. Yet even so, he cannot always escape.

It would seem, therefore, that until an age of universal enforcement of all law shall have come, the nuisance will continue. And further, it would appear that the expensive consequences would be felt more or less by all motorists. Yet to those who will insist upon driving without regard to the rational need of moderate speed in such places, will come the greatest punishment.

Last but not least of the long list of accusations hurled at the automobile—or rather, latest, for the aforesaid list is being augmented every day, is that of the crime of taking the erstwhile holder down of a chair at the club away from his wonted haunts. The men of gregarious instinct who could always be depended upon to look handsome around the club quarters have developed an opposite tendency. Now they are away on their own or someone else's motor car, so that in addition to having multiplied divorces and broken up the happy family, the automobile is responsible for the desertion of the club.

Despite the existence of laws forbidding the use of automobiles without the owners' permission, the reckless chauffeur out for a midnight lark with his "lady fr'en's" continues to get in his deadly work. And as a sage observer once remarked, it is suggestive that practically all of the accidents occur on the return from the roadhouse and rarely on the way thereto. The remarkable part of it all is how the offenders avoid prosecution.

Not the least of the wonders of these transcontinental record performances is how the performers, going at reckless speed, contrive to escape the police of so many cities, towns and States.

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OLDFIELD AROUSES BALTIMORE

Immense Crowd Sees Meet on Pimlico Track—Good Racing the Rule.

Notwithstanding that Barney Oldfield failed to break any world's records at the race meet at Baltimore, Md., on Saturday last, 11th inst., the times made in several events demonstrates that the famous Pimlico trotting track is one of the fastest mile tracks in the country and the fact that nearly 7,000 spectators wildly hailed the appearance of the indomitable Barney and E. C. Bald, has convinced Howard A. French, Howard Gill and other Monumental City sportsmen to believe that the Maryland city affords a rich undeveloped field for automobile racing. This belief has resulted in the formation of the Maryland Motor Association which will promote race meets at Pimlico, Baltimore.

Last Saturday, Oldfield, in the presence of a gathering of spectators that bordered close to 7,000, circled the famous oval for a mile in 1:01⅘. In the race with Bald, there was much disappointment, but not through any fault of Oldfield who has, after two or three years of grandstand playing, learned the true secret of automobile racing, that is drawing close finishes. Oldfield and Bald were going neck and neck when the first turn on the final mile came and the immense throng bristled with excitement. Bald held the pole and looked a close winner when, just after rounding the turn, he came to an abrupt stop, something having gone wrong. Oldfield continued and won as he pleased. It was an unfortunate conclusion to a thrilling race for up to that time they had been keeping within a half-length of each other at express train speed. There were two heats in this race, called the Monumental sweepstakes, for the usual $1,000 purse with the additional $500, should the record be broken. In the initial heat, Howard W. Gill, of Baltimore, was pitted against Bald, the winner to meet Oldfield in the final. Bald and Gill were slated to go five miles, but after trailing along in Bald's dust for three miles, Gill quit on account of mechanical derangement, and Bald was proclaimed the victor. His time for three miles was 3:27⅗.

At the start of the final heat, five miles, Bald jumped into the lead and got the pole. At the end of the first lap Bald was leading by a scant length. Although Oldfield made wide sweeps at the turns he gained inch by inch and at the second and third miles Bald led by only a quarter of a length. Down the stretch for the finish of the fourth mile Oldfield shoved the "Green Dragon" up for a lead of a nose, but just before the turn Bald cleverly regained the lead and fronted ahead half a bonnet. Then the accident to Bald's car unfortunately put him out of the running and Oldfield stacattoed under the wire alone. His time was 5:39⅗.

Shortly after this Oldfield tuned up the "Green Dragon" for a try at the track record of 53 seconds held by himself. He was carded to go five miles, the best mile to count, despite the fact that such "mile records" are no longer recognized. The first mile was reeled off in 1:01⅘, the fastest of his efforts. A punctured tire put a summary stop to his record shattering attempt in the third mile. Time for two miles was 2:18⅗.

The most noteworthy event of the meet was the last—a fifty-mile free-for-all, for fully equipped touring cars. Three cars started, a Thomas with A. Stanley Zell up, a Columbia with Frank Hurst at the wheel, and a Lambert with Arthur Norwood for its pilot. This event marked the second victory of the day for Zell's Thomas. A good finish was spoiled when Hurst abandoned the race just after starting the last mile, as the finish was between the Thomas and the Columbia, the Lambert having lost two laps up to the thirty-sixth mile and given up. Zell took the lead from the start and held it to the finish. In the fifteenth mile the Thomas lapped the Lambert while on the next the Columbia tagged it. The Lambert lost another lap to the Thomas in the thirtieth mile and one to the Columbia in the thirty-fifth. Zell held a safe lead throughout, except in the fortieth lap, when the Columbia closed up the gap to two lengths.

As a diversion of sport the motorcycle handicap created considerable interest, seven riders being entered for the five miles. It was won after a hard race by James Mangold, 2¼ horsepower Indian, a scratch man, who won the event at Bennings the week previous. Mangold lost considerably at the start through a bad get off, but after strenuous riding and hugging the pole line rather close, overtook Chic Thomas (Indian), the so-called Maryland champion, who had started with him from scratch. From then on Mangold got to work and threw dust in the other rider's faces until the finish, leading over the line by a comfortable margin.

There were seven events in all, including the Oldfieldian record breaking stunt. Albert Kershaw, in a Buick, took the opening event at three miles, for cars costing less than $1,000, showing the way to his competitors the entire distance. Arthur Norwood, Lambert, was winner in the event for cars costing less than $3,000 and Zell, Thomas, who subsequently won the fifty-mile event, finished first in the event for cars costing more than $3,000. Frank Hurst, Columbia, was second. Zell's time was 3:53⅗.

From start to finish not an accident marred the afternoon's sport. Long before the schedule time for the first race a great crowd fought for place in the ticket line in front of the box offices. The crowd was far beyond the fondest hopes of the promoters, and they were caught napping in their arrangements. Although the spectators were taxed doubly for admission to the grandstand, the big structure was packed, many standing in the aisles and in the space in the rear at the top of the stand. The crowd broke through the door that leads from the grandstand to the upper grandstand and in less time than it takes to tell that space was filled. A big crowd lined the fence rail, while every possible nook was taken for a sight by the members of the Pimlico Country Club. Robert H. Carr was referee and George S. Dickey and Osborne Yellott, the latter being the man who was instrumental in having passed at the last session of the legislature an automobile law favorable to the Baltimore A. C., acted as judges. The summaries follow:

Three miles for cars costing less than $1,250—Won by Albert Kershaw (Buick); second, J. H. Whipple (Buick); third, M. N. Higgs (Maxwell). Times, 4:52⅗, 5:13, 5:13⅕. Also ran—Jesse L. Cassard (Ford) and B. B. Bittle (Jackson).

Five mile handicap, for motorcycles—Won by James Mangold (Indian), scratch; second, Raymond Thomas (Indian), scratch. Time, 7:54⅗. Also ran—Harry Fisher (10 seconds), William Fisher (45 seconds), Herbert Webber (scratch), William Wood (scratch) and A. Baer (30 seconds).

Three miles for touring cars costing less than $3,000—Won by A. Stanley Zell (Thomas); second, Frank Hurst (Columbia). Times, 3:53⅗ and 3:58⅗. Also ran—Howard Gill (Stanley).

Monumental Sweepstakes—First heat, three miles, won by E. C. Bald (Peerless White Streak); time, 3:27⅘. Also ran—Howard Gill (Stanley). Final heat, five miles, won by Barney Oldfield (Peerless Green Dragon). Time, 5:39⅕. Also ran—E. Bald.

Two mile exhibition by Barney Oldfield. Time by miles, 1:01⅗ and 2:18⅗.

Three miles for touring cars costing more than $3,000—Won by Arthur Norwood (Lambert). Time, 4:42⅗.

Fifty miles free-for-all, for touring cars—Won by A. Stanley Zell (Thomas). Time, 1:06:38. Also ran—Frank Hurst (Columbia) and Arthur Norwood (Lambert).

The Events of Labor Day.

According to reports, the Atlantic City Automobile Club is considering the project of running a series of beach races on Labor Day, September 3d. The New Jersey Automobile and Motor Club is figuring on a race meet to be held on the half-mile track at Weequaic Park; the Chicago A. C. has a hill-climb scheduled and the Automobile Club of St. Louis a track meet. With the so-called "American Touring Car Derby," at Rochester, N. Y., also on the calendar for that date, motorists will find varied amusement on the workingmen's holiday. It seems probable, however, that the Rochester event will be postponed, if not abandoned, as several hitches have developed and few entrants been secured.

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The Carload of Ladies and its Suggestion



From bridge design to motor car construction seems, indeed, a far cry. Probably, were not his attention directly called to it, the average motorist would fail entirely to notice the exact similarity underlying the basic principles of the two. Nevertheless, it is a fact that the motor car chassis invariably comprises what virtually amounts not to one, but three bridges. For the manner of supporting the weight of the machine upon its four wheels makes of each axle a bridge in the true acceptance of the term, while the frame, besides connecting and otherwise preserving a stated relation between the two axles, also bridges them, in carrying the load. Further, when it is considered that while in the case of the ordinary bridge structure, the framework remains stationary while the load passes over it, and in the case of the automobile the structure moves, while the load remains relatively stationary with regard to it, it will be seen that the two problems have much in common, and in fact, are closely analogous.

In bridge design, however, the builder's limitations are far less skimped. He has all out of doors in which to stack his framework, his foundations are, roughly speaking, of a permanent nature, and not greatly affected by external conditions, and again, the load, while a live one, yet is one which progresses with certain uniformity from end to end, traveling without great shock to the formation. The load of the motor car, on the other hand, while relatively dead, in the mechanical acceptance of the word, even though very much alive physiologically speaking, yet changes its relation to the supporting structure continually, owing to the oscillations of the springs. At the same time, the entire structure is being tossed about on the road, yanked and twisted like a bridge in a spring freshet until it is put to a test which no bridge of more conventional type could for a moment withstand. For in addition to the stresses put upon it by the road resistance, it is internally subject to added pressures due to the efforts of the driving mechanism.

To complete the anology, it is necessary but to mention the fact that the motor car designer instead of being limited only by specifications as to cost, grades of material, and the local conditions of the foundation, has in addition to cope with limits as to weight, bulk, position and application of the parts, as well as with far more varying live load. Take for example, the case of the car shown in the accompanying picture, which by the way, is one of the "Northern-Fours," having that air-controlled clutch, of which so much has been heard. It is shown carrying more than twice its normal calculated load of passengers. Yet its designer had to consider the possibility of such an overload, and to provide sufficient strength of material, not simply so that the frame structure would support the added weight on occasion, but that it would be capable of carrying it at any required speed within the limits of the engine power, so hampered, and with unimpaired comfort to the passengers.

That a car should be able to carry a fifty per cent. overload without difficulty is one thing; that its frame should be able to support such a load without straining or disturbing the arrangement and relation of any portion of its mechanism, is another and far more important affair. For while the one implies simply the adaptation of extra engine power, which may not be in demand at all times, the other requires a structure which must increase in resisting power at a far more rapid rate than the increase in load would seem to indicate, and which, while it may become too heavy or too bulky, never can become too strong. The comparison insofar as the factors regulating the design of the two types of structure are concerned, may seem a trifle loose, but at all events, it serves to point out one of the diverse phases of the problem of motor car design, and in this way, reveals a small part of its complexity in an unusual way.

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DURAY WINS ARDENNES

Many Entrants Fail to Start and Few of the Cracks Figure Prominently.

G. Duray, the blonde young Belgian who has been more or less of a contender in all the notable automobile road races for the past three years, has at last received his reward. On Monday of this week, the 13th, driving a 130 horsepower Lorraine-Dietrich, he won the annual circuit des Ardennes, the international event organized by the Automobile Club of Belgium and contested by cars of German and French manufacture. Duray covered the seven circuits of the course, totalling 595 kilometres, about 370 miles, in 5 hours 38 minutes 39 seconds, averaging about 66 miles an hour.

With twenty-seven entrants only nineteen cars and their drivers appeared at the start at Bastogne, Belgium, at 7 o'clock, Monday morning, the hour for the start. The first driver to get away was Corré, at the wheel of a Corré. Two minutes later Hémery (Darracq), last year's Ardennes winner and winner of the Vanderbilt Cup race followed, and the remaining seventeen cars were sent off at two minute intervals.

The course was in excellent condition, the roads having been tarred and widened in preparation for the event. The start and finish was at Bastogne, the course going through the towns of Longlier, Offaing, Leglisle, Habey-la-Neuve, Corne-du-Bois des Pendus and Mortelange. Each lap measured about 53 miles and seven times around constituted the race.

Long before the time for the start the scene around Bastogne was one of bustling activity. An immense grandstand had been built across the road at this point and afforded a magnificent view of the cars as they rushed down hill.

The first round saw the Corré, the first car to start, and Baras's Brasier eliminated Corré was not heard from again and Baras smashed one of his front wheels and deranged his steering gear. On the second lap misfortune came to Burton, on one of the Mercedes. Burton was only put on as a substitute at the last minute, Marioux, the regular driver, having taken sick with cramps the night before, and Burton, of course, was under trained. His nervousness probably caused him to ruin his clutch. Suguet, on a Brasier, also quit the race in this lap, carburetter trouble causing his disappearance.

With the exception of Hémery, in a Darracq, and Demogeot, the two mile a minute "king," also in a Darracq, there was no more dropping out until the fifth lap, when Bablot, in a Brasier, disappeared and was not heard from again. This left the Brasier firm with but one car in the race, that driven by Barillier. The rest of the competitiors, twelve in all, finished the race without incident, Duray leading Hanriot, Darracq, across the finish line by less than two minutes, corrected time.

All the cars in the race with the exception of three—Hémery's, Wagner's and Demogeot's (Darracqs), were equipped with the new removable rims, to which a large share of Francois Szisz's victory in the recent Grand Prix race was attributed.

During the race the times of the machines were taken for the greatest speed of 100 kilometres. Wagner scored the best time, covering the distance in 52 minutes 49 seconds, or an average of nearly 71 miles an hour. He finished eighth, however.

Winning the Circuit des Ardennes was Duray's first big victory. Last year he was a conspicuous figure in the Vanderbilt cup contest by reason of his having the highest powered car in the race and he was running in ninth place when the race was ordered stopped. In this year's Grand Prix the young Belgian finished eighth and he was sixth in the International cup and second in the Florio cup races last year. In the last Ardennes race he finished seventh. Duray will be one of the French team to contest for the Vanderbilt cup this year. Hanriot, who finished second, is little known as a driver, except that he has been in the Darracq employ for several years. Rougier, Barillier and Gabriel, who finished next in order, are all well known drivers, the last named having competed in the first race for the Vanderbilt cup.

Following is the summary of the cars that finished Monday's race:

Driver. Car.	H. M. S.
1. Duray, De Dietrich	5:38:39
2. Hanriot, Darracq	5:40:31
3. Rougier, De Dietrich	5:50:11
4. Barillier, Brasier	5:50:27
5. Gabriel, De Dietrich	5:52:14
6 Clément, Bayard	6:02:55
7 Sörel, De Dietrich	6:04:38
8. Wagner, Darracq	6:14:45
9. Salzer, Mercedes	6:14:50
10. Jenatzy, Mercedes	6:15:27
11. Villemain, Bayard	6:40:32
12. Garcet, Bayard	6:51:37

Fined for Interrupting a Funeral.

While common decency suggests that the driver of a car should not interrupt a funeral procession by breaking through it, there are probably few communities that have ever given the subject sufficient thought to place a prohibitory statute against such a practice on record. Fond du Lac, in Wisconsin, seems to be one of the few, however, and last week Anton Honigsboerg was arrested for doing so and found guilty of having broken the town ordinance. He was fined $5 and costs, but is not content to let it go at that. He has had the text of the law looked up and is confident that it does not cover automobiles, as it specifically refers to any "vehicles that shall be pushed through any funeral procession, etc." As the man with the name is quite sure he was not pushing his automobile at the time, he has decided to make an appeal.

CHAUFFEUR IN TROUBLE

His License Revoked, He Threatens Suit and now may Face Charge of Perjury.

A test in the courts of New Jersey of the new Frelinghuysen automobile law is likely to be brought about as the result of the revocation, last week, by Motor Vehicle Commissioner J. B. R. Smith of driver's license No. 8795, issued to Joseph Brady, chauffeur for Gerrish H. Milliken, of Philadelphia.

Brady has secured counsel and says he will fight the case, his lawyer questioning the right of the Commissioner to revoke the license of a driver. Commissioner Smith has acted after consultation with the State Department of Justice, and has no fears for the outcome of the contest. He says if a test of the law is to be made the sooner it is done the better. He says the revocation of Brady's license was entirely justified.

Brady's license was first revoked on July 14, but he was afterward temporarily reinstated pending an investigation, which resulted in a lengthy correspondence and many affidavits being presented. As a result of the inquiry the commissioner feels that Brady has violated the laws and shown himself not only an unfit person to run an automobile, but has also perjured himself. The latter phase of the case has been submitted to the Prosecutor of Monmouth county for his action.

Brady's license was revoked because he crashed into a buggy at Long Branch, where he was driving his employer's automobile. Early the following morning he resisted an officer who was attempting to arrest Robert Dwyer, another chauffeur, whose license had been revoked. For this offense he was held to await the action of the Grand Jury.

The accused driver made affidavits to the Commissioner to the effect that he had never been arrested before, and that he had a good character and that he was a careful driver. The commissioner claims that the investigation conducted by Inspector Geo. W. Thompson, of Somerville, has shown the affidavit to be false in several particulars.

The Centers of Motoring.

Cleveland, Ohio, claims to take first rank in the number of automobiles in proportion to the city's population. There are now 3,020 cars registered at the city clerk's office, or a car to about every 150 residents. New York City has but one machine to every 250 persons, while Chicago's proportion is still less. Denver's boast is that city owns more automobiles than any other municipality of its size in America. With a population of 175,000, the records show 1,050 licensed cars, or one machine to every 170 persons.

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WHITMAN'S WHIRLWIND DRIVE

Smashing Cross-Country Records to Smithereens—Serious Spill Nearing Destination.

If no more accidents occur to hinder his progress, L. L. Whitman, who is making a cyclonic dash across the continent in a six-cylinder Franklin, should reach New York City some time to-morrow. On this basis he will have succeeded in clipping about eighteen days from his record of 32 days 21½ hours, made in a four-cylinder car of the same make two years ago. The distance from coast to coast by the route which Whitman has taken is between 3,500 and 4,000 miles so that the word cyclonic aptly describes the daring transcontinentalists meteoric flight from ocean to ocean.

The latest news of Whitman and his car was received late yesterday afternoon when he wired that he had met with an accident near the border line of Ohio and Pennsylvania that would delay them about twenty-four hours, but that they expected to reach this city Friday. The accident occurred when the pair were driving through a heavy fog from Lake Erie, just out from Conneaut, Ohio. The car was traveling at the rate of about thirty-five miles an hour, and in rounding a slippery turn skidded off into a gulley. The car turned turtle, throwing out both Whitman and C. S. Carris, who is alternately driving. Whitman escaped with a shaking up, but Carris was not so fortunate, spraining his ankle and sustaining a fracture of the knee. Both single seats of the car were reduced to kindling wood, the steering gear bent, the front axle twisted and both mud guards torn off. The engine was still running when Whitman collected his scattered wits and looked to ascertain the injury done to the car.

Up to this time the Californian's flight has been remarkable and had not one or two incidents necessitated delays he undoubtedly would have succeeded in more than halving his old record. Whitman has the transcontinental habit, this being his third trip. On the present journey he did not start from San Francisco but from Stockton, a point some miles east of San Francisco, on August 2, at 6 p. m., and he reached Omaha, Neb., having accomplished the worst part of the journey, on Saturday night in nine days from the start, having bettered his 1904 record by eleven days. At Ogden he was six days ahead of the old time. From Sacramento, Cal., to the summit of the lofty Sierra Nevada range is an ascent of over 7,000 feet, and the running time of the fastest mail train was nearly equalled by the daring driver. From the base of the mountain to the shores of the great Salt Lake stretch 600 miles of arid desert sands, and this waste was negotiated by the record-breakers at an average of eleven miles an hour, inclusive of nearly twelve hours lost in extricating the car from the treacherous quicksands which surround Humbolt Sink, into which the machine had run. Wyoming presented even greater difficulties and would have deterred a less reckless driver, for Whitman is that and insanely so. The heavy rains had swollen the rivers, all of which had to be forded, and block and tackle had to be frequently resorted to when the car imbedded its wheels in the muck and mire of "gooey" irrigation ditches. The trip nearly came to an end when at Green River, Wyoming, the car became immeshed in the soft bottom, but after six hours was extricated. Another delay of eight hours was encountered between Rawlins and Cheyenne, the inevitable quicksands being the impediment. From Ogden, Whitman and Carris climbed the 8,000 feet elevation of the Rocky Mountain divide, without a hitch, the highest point on the trip being reached at Sherman. Rain and mud roads were met with in Nebraska, but despite this obstacle the car rolled into Omaha, the night of August 11, eleven days ahead of the old record.

The route from Omaha led across and along the Chicago and Northwestern Railroad through Iowa, through Marshalltown and Cedar Rapids and across Illinois to Chicago. In Iowa, he ran into a buggy and was arrested and detained eight hours but nevertheless reached Chicago Monday night, ten and one-half days out.

Whitman was so well ahead of his old record at Chicago that he determined to make an attack on Bert Holcombes's record of 58 hours from that city to New York. Tuesday noon the car was reported at Toledo and that night at Cleveland. Then occurred the accident mentioned above. Up to the time of its occurrence the only mechanical mishap had been a broken spring, although three spark plugs had been replaced and the carburetter cleaned several times. When the accident occurred Whitman was eight hours ahead of the Chicago-New York record, but the mishap in Ohio will put an end to his record-breaking aspirations in the latter respect although he will break the coast to coast mark by about eighteen days.

Whitman is carrying with him a letter from Mayor Schmitz of San Francisco to Mayor McClellan of New York, thanking the people of New York for what assistance they gave at the time of the disaster.

How to Cross "Thank-ye-ma'ams."

"Thank-ye-ma'ams" probably cause more discomfort and rack the car more severely than any other form of road surface, but comparatively few drivers having acquired the knack of relieving the shock of the bump. Where the road will permit it, the jolt can be very greatly lessened by crossing the road not head-on, but on a slant; the wheels thus receive the shock separately. Skill, quick action and some caution are all that are required.

ALL FOR A HIGH CHINESE!

Men who Smelled Powder to Cross Continent for His Sake—The Heroic Tale.

R. H. Little and C. D. Hagerty, two Western newspaper men who witnessed the fracas between Japan and Russia, have joined in the now popular game of "crossing the continent" and are due to leave New York for San Francisco this morning at 6 o'clock. They will not, however, get corns on their palms or soil their finger nails like other record breakers. They are to ride in state as passengers in the Buick car that is being used and which will be driven night and day by relays of three drivers, so just to whom the credit will attach is difficult to decipher.

The Chicago press agent in charge of the undertaking and who, after wining and dining the New York reporters and supplying them with biographies, preceded the car, has sketched a wondrous story of the motive involved. When Little and Hagerty were in the Far East they met a Chinese official with whom they discussed the merits of gasolene, etc. He told them to find him the best automobile in America. Hence the little journey of about 3,500 miles. If the combined fancies of two former war correspondents and one confirmed press agent do not succeed in discovering that car, it is presumed that it will not be decided by popular vote.

Oldfield to Race for New Yorkers.

Although all the details have not been definitely concluded, a race meet, the first track meet in New York this year, has been scheduled for August 24 and 25, at the Empire City track. William H. Pickens, manager for Barney Oldfield and his select coterie of racing cracks, is arranging the meet. It is planned to hold a thousand mile race, beginning on the first day and concluding on the last, when it is expected the present 1,000-mile and 24-hour records will be broken.

Long Beach to Have a Parade.

Following the successful informal race meet run off Saturday, the 4th, at Long Beach, L. I., the Long Beach Country Club of which General John T. Cutting, the head of the Oldsmobile New York interests, is president, has planned an automobile carnival for Saturday of this week, the 18th. Several novel events will be held, including a parade, in which prizes will be awarded to the best decorated cars.

Barney Oldfield, E. C. Bald, C. A. Coey and other drivers of national reute are expected to give Philadelphians and lower Jerseymen a taste of real automobile racing on August 22, Wednesday next. The old Point Breeze track has been secured and an interesting card of local and open events has been arranged.

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MOTOR CARS IN MANOUVRES

How they are being Employed at Mount Gretna—Even Commander Uses one.

As was the case last year, automobiles are playing an important part in the United States Army manoeuvres recently inaugurated at Mount Gretna, Pa., where a regulation White steam car has been assigned to the service of General Frederick D. Grant and his staff. The car, which has been constantly in use since the beginning of the encampment, is employed in carrying the officers about, reconnoitering the country where it is proposed to hold the sham battles which are the most important feature of the campaign, and in dispatch duty, in which it has been found to effect a great saving over the service usually performed by the conventional mounted orderly.

Indeed, the work of the car has established for it a most favorable prejudice in the minds of the officers, and the outlook toward the future adoption of many cars by the department, is considered most hopeful. As is well known, the likelihood of steam cars being adopted for this class of duty, is very strong. Nevertheless, the present trial of the machine is extremely severe. All sorts of roads and a good variety of open country are being traversed; the work is almost continuous; and the method of handling prompted by the "get-there" spirit, is not conducive to the nursing of any weaknesses in the mechanism. And indeed, it is partly owing to a desire to bring out any such failings, that the machine is being forced so hard, but its responsiveness thus far, has been unimpaired by any mishap.

The White ambulance, which has been in the service of the Medical Department since last winter, was driven to Mount Gretna from Washington in record time, carrying eight passengers and 1,000 pounds of hospital equipment. Indeed, the zeal of the driver, to make good time, brought him into conflict with the local authorities of Mercersburg. Here he was arrested for speeding within the town limits and a personal visit of General Grant to the local authorities was necessary, in order to convince them that national military necessity takes precedence over the crotchety regulations of any dependent territory.



THE ARMY AMBULANCE AT THE MOUNT GRETNA ENCAMPMENT



OFFICER OF THE DAY MAKING HIS ROUNDS

Pennsylvanians Plan Legal Work.

The Pennsylvania Motor Federation, composed of the disgruntled clubs throughout Pennsylvania which got mad and refused longer to play with the American Automobile Association last spring, and accordingly set up an association which they could call their very own, held a meeting in Philadelphia last week, sixteen delegates from twelve clubs in the State being in attendance.

A committee of three, consisting of President Isaac Starr, Jr., H. Bartol Brazier and Robert P. Hooper, was appointed to draw up a bill for presentation to the next Legislature asking for an appropriation to carry out the Federation's plans in the matter of the Philadelphia-Pittsburg highway.

A discussion of the workings of the State automobile law took up fully an hour of the meeting's time. Complaints of the over-officiousness of country constables, and their too evident desire to "turn an honest penny" at the expense of automobilists on the slightest provocation, were registered by the majority of the delegates, and at the conclusion of the discussion Paul C. Wolff, of Pittsburg, was appointed chairman of a committee to draft substitute sections governing the duties of constables and other officers in making arrests, and a new section compelling towns and townships to erect on all main roads signs indicating their limits.

Frequent arrests for overspeeding have been made all over the State by township and village officers on the charge of violation of the local ordinance, whereas in the open country there was nothing to indicate the boundaries of a village.

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LITTLE ALCOHOL IN CUBA

Government Report Dissipates Hopes that had been Raised—The Exact Situation.

Although Prof. Elihu Thomson and other early advocates of alcohol as a fuel for internal combustion engines pointed to Cuba as a source from which a generous supply of the fluid would be obtainable at from 12 to 14 cents per gallon, the inquiry of the Treasury Department does not bear out the hopes that were created. The Department's reports from Cuba regarding the situation that exists there says:

"The principal consumption of denatured alcohol up to the present time in Cuba is in the domestic household. Consumption in motive power is as yet insignificant, as there are but few motors operated by combustion of alcohol. There are no chemical industries, properly so called, in Cuba and the pure alcohol is used in mixture with drugs. For illuminating purposes, denatured alcohol is beginning to be used by students and professional persons who reside in the country.

"The increase in consumption of denatured alcohol is incalculable from the day that the Cuban planter is convinced that he is, so to speak, throwing away or making a gift to the export commerce of thousands of tons of saccherose in the form of molasses. It may be asserted that the medium of the molasses sold as exhausted contains more than 50° polarization. Consequently, if this molasses is converted into alcohol, setting up distilleries in connection with sugar factories, it would solve the problem of fuel, the most important in the sugar industry, either by the use of motors with an alcohol basis, or by burning it as a spray over the bagasse, as is done by the planters of Louisiana with petroleum.

"For domestic as well as for industrial purposes, two kinds of alcohol of different density are employed, viz, that called aguardiente, generally 20° to 22° proof, Cartier, or 60 centesimal, and rectified alcohol 42° Cartier proof or 90 to 92 centesimal, and as both kinds have the same origin; the difference consists only that the former contains more water and has in solution slight qualities of oily acids, characteristic of the main liquid, while that of 90° proof may be considered practically pure. For denaturalization, alcohol of 90° to 92° proof is generally used.

"As the alcohol produced and used in Cuba proceeds from the fermentation of molasses or of the juices of the sugar cane, it does not contain any fusel oil. This substance has never been considered as a problem in hygiene, nor are there any special regulations in regard to it. Spirits, however, accompanied by the products when first distilled (mauvais gouts de tete, as the French say), contain methylic alcohol, and if accompanied by the products of secondary distillation they contain something of fusel oil. As these products are, however, easily separated by rectification, alcohol in use in Cuba, such as leaves the distilleries, is practically pure.

"No other prime material is used in the manufacture of alcohol than the products of the sugar cane. Up to the present time the substance employed to denaturalize alcohol is camphor at the rate of a gram per liter of alcohol, but the treasury department of Cuba has requested the Academy of Science to designate some agent for denaturalization more convenient, and the academy has suggested that a mixture composed of napthaline and (formical) aldehydro be used at the rate of 50 centigrams of each liter. If the secretary of the treasury accepts the proposal of the Academy of Science, the cost of denaturalization of alcohol will be $0.0047 per American gallon.

"The camphor now employed costs about $0.0135 per American gallon, but as there does not exist any practical means to determine quantitively the amount of camphor dissolved, and as, moreover, the employees of the departmentt do not witness the denaturalization, some suppose that the manufacturers put into the alcohol they make for sale a much less quantity of camphor than is ordered by the authorities. The present cost of camphor is $1.65 per pound; of formel, $0.25, and of naphthaline, $0.90.

"Denaturalization is tested by the organileptic characteristics such as smell, taste, etc., but in the case of litigation or disagreement between parties a sample is sent to the national laboratory, where the alcohol is examined and analyzed according to the usual chemical process.

"The cost of the denaturalized alcohol which is generally sold for public use is from $48 to $50 Spanish gold per large pipe, which contains 173 American gallons. The difference depends upon the graduation, generally 40° to 42° Cartier (90 to 92 centesimal).

"It must be taken into consideration that the graduation or proof is taken in commerce at the temperature of the air (atmosphere), and as the apparatus is graduated at from 15° to 17.5° Centgrade, the real strength of the alcohol is about 36° to 40° Cartier.

"Retailers sell the 'garafon' (demijohn), about 4.55 gallons, at $1.60 to $1.70 Spanish silver, while in bottles of about the fifth of a gallon in capacity at $0.08 Spanish silver."

Where American Cars are Well Displayed Abroad



What is one of the first, if not the pioneer exclusive agency for an American car to be placed on the Continent, is represented by the establishment of Otto Pape in Berlin, where the Pope-Toledo cars are given sole attention. And as is customary on the other side in enterprises of the kind, no effort has been spared to make the setting an appropriate one. The two views presented show the facade of the artistic salesroom as well as the entrance to the garage.

Shows Great Growth of 'Busses.

Besides its thorough investigation of the status of the motor car in Great Britain, the long delayed report of the Royal Commission on Motor Cars furnishes some interesting statistics as to the present condition of the local industry as well as its rate of growth. Briefly, these figures show that in sixteen months the number of motor bicycles has increased 50 per cent. and the number of motor cars over 80 per cent. In London, on December 31, 1904, there were 31 motor omnibusses registered as stage carriages. On May 1, 1906, there were 464 such vehicles plying, and the increase, though less in proportion, has been great in other parts of the Kingdom. In October, 1905, the capital invested in the industry was given as nearly $25,000,000, while the number of employees was stated to be 17,000, and a large increase since that time is said to have taken place.

Down at Huntington, Long Island, there was a sign by the roadside which warned automobilists to "Slow down to eight miles an hour." Some frivolous minded person added a letter "y" to the sign, making the speed limit eighty miles an hour, and it was some time before the local authorities discovered what had caused the sudden mania of speeding.

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ROYAL COMMISSION'S REPORT

After Nearly a Year's Labor, it Brings Forth These Recommendations.

At length, and after something like eleven months of mature and careful investigation and cogitation, the Royal Motor Car Commission of Great Britain, which last September went to work upon a thorough review of the status of the automobile in the United Kingdom, has placed its report before the House of Commons. According to the full text, which is now available for the first time, this work is remarkable in two ways, first, for its general sanity and favorable attitude toward the automobile, and, second, in the amount of newspaper and general comment which it has excited both at home and abroad. Briefly, the recommendations made, which it is understood are to influence the construction of the new Parliamentary Motor Car Act, are these: The speed limit in the open country shall be abolished; more severe penalties shall follow "driving to the common danger"; a speed-limit of twelve miles an hour shall be enforced in towns and villages; the revenue derived from a regulated car tax based on weights, shall be devoted to highway improvements; endorsement of licenses shall be at the option of magistrates and after two years of freedom from conviction, endorsed licenses shall be renewed as clean; and, lastly, all legislation in regard to self-propelled traffic shall be included within the scope of a single act.

Excerpting from the text such clauses as are of widespread and general interest, the following condensed passages are taken. With regard to the question of speed, after enunciating the axiom that whether there is a speed limit or not, some general provision regulating the procedure of vehicles on the public highways is necessary, it is remarked that on the other hand it seems clear that there are many occasions when a speed of 20 miles or more, may be and is maintained with safety over a considerable distance. It would therefore appear, it is concluded, that the enforcement of the 20-mile limit, ensures the conviction of some who, though they may be breaking the law, are not, in fact, endangering the public. Or, in other words, "We think that the object of the law should be not to punish speed because it is speed, but because and where it is dangerous or otherwise injurious to the public." And again, "Public opinion may be relied upon to support the enforcement of a law against reckless, negligent, or dangerous driving, which in itself is a menace to other users of the road. But the enforcement of a maximum speed limit does not command the same unanimous support and sympathy."

Hence, the repeal of the general universal speed limit is suggested. The traffic conditions of large towns being taken as self-regulating to vehicles in a measure, the only points where especial caution is required are on dangerous turns, and on roads passing through small villages. In such localities, the local authorities shall place danger boards at specified distances from the points, and when such measures have been taken, it shall become an offense to travel through the sections so guarded at speeds greater than twelve miles an hour. The regulation and placing of such signals is to be placed in the hands of certain recognized authorities according to their nature and location.

With regard to the responsibility of motorists for stopping after accidents in which they have been connected directly or indirectly, an amendment to the present statute has been proposed to run somewhat as follows:

"Any person driving a motor car shall be guilty of an offense under this act if he fails to stop his car, and drives on without tendering his name and address, with intent to escape any liability, either civil or criminal, when an accident has occurred to any person, or to any horse or vehicle in charge of any person, owing to the presence of the motor car on the road."

"We recommend," says the Commission, "that the section should be amended somewhat on these lines, and should be made to extend to accidents to any animal in the charge of any person."

The much mooted question of the dust nuisance is taken up as follows:

"There is no doubt at all about the dust nuisance; during the summer months it exists more or less on all frequented roads, but more particularly on the great main roads and within a radius of 30 or 40 miles of London, and it causes material damage, discomfort and annoyance to users of, and dwellers by, the highways. On the other hand, it is no doubt true, as regards injury to real property, that the letting value of many houses in some parts of the country has been substantially increased by the aditional accessibility which they have acquired owing to the introduction of motor cars.

"It is obvious that any diminution of this excessive amount of dust, can only be sought for in some alteration of the structure of the car, the speed of the car, or the condition or treatment of the roads. There seemed to be a general belief, in which we concur, that a car standing high from the ground, with a clear, smooth run for the draught beneath it, is the build calculated to produce least dust. The evidence on the subject, however, has not shown that any particular form of construction will produce cars that will uniformly raise but little dust, and on the whole we do not think it practicable to deal with the question by prescribing or prohibiting any particular method of construction. Speaking generally we came to the conclusion that at a speed below 10 miles an hour the dust raised is comparatively slight, that it increases very greatly at from, say, 12 to 20 miles an hour, and continues to increase, but in smaller proportion, at higher speeds.

"Although we look to an improvement in road surfaces to effect the chief remedy for the dust nuisance, we feel that this remedy can but be of slow application, and we have seriously considered whether we should not recommend that an obligation should be placed by act or regulations upon the driver so to drive his car as not to produce an excessive amount of dust when passing houses or traffic, but after careful consideration of the question we have not seen our way to advise that the production of dust should be made a statutory offense. We feel that such a provision would be difficult to enforce, and uncertain in its application, and that it would frequently be impossible for the driver of his own knowledge to disprove the charge even it if were ill-founded or maliciously made. The question of the production of dust is nevertheless one which motorists will do well to keep constantly before them, for if cars continue to be driven in dusty weather at high speeds without regard to the discomfort and annoyance caused to every other user of the highway and dweller alongside it, there may arise an irresistible demand for some drastic provision on the subject.

"There is no doubt that a well constructed road, made of hard stone, carefully laid on a good foundation, with proper filling or binding material, and well rolled, will produce far less dust than a poorly-constructed road, made with some soft or unsuitable stone of the district, and filled in with road scrapings or other unsatisfactory bindings, as is often the case," continues the report. "By substituting good roads for bad roads where the latter exist, the dust nuisance might be very sensibly reduced, but this could only be effected at a cost which might not alone justify so great an expenditure. There are, however, other arguments in favor of better (and, therefore, less dusty) roads, which must present themselves to the mind of anyone who is considering whether the expenditure involved would be justifiable. These are, firstly, the growing necessity of providing roads adequate to carry heavy motor cars and traction engines; secondly, the probable great increase in the number of both light and heavy self-propelled vehicles in the course of the next few years; and, thirdly, the fact that the extra cost of construction would, in the course of a series of years, be to some extent repaid in economy of upkeep.

"Generally speaking, the evidence suggests that the best type of macadam will probably be found to make the most effective and economical road for all kinds of traffic, including both heavy and light motor cars. Such roads should be made with solid foundations and surfaced with granite or similar stone, the binding material being of screened gravel or chippings of

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the stone used, and being properly rolled in. * * * * *

"To meet the case of towns and villages traversed by dusty main roads some adaptation of the French tarring process has been suggested. Road authorities in several parts of England have experimented, on short lengths, with tar, tar-mac (a road material consisting of iron slag broken small and boiled in tar), westrumite and other dust preventatives; but these experiments have not been on a sufficiently large scale or carried on long enough to afford any satisfactory information as to their success."

As to the manner in which the revenues obtained from motor car taxation should be distributed, it is suggested that they should be handed to some central department or departments, and should be, by them, appropriated in part payment of the costs incurred by the local authorities, not in the ordinary and customary repairs, but in works, which, "have for their object the creation of more durable and less dusty road surfaces, and the removal of danger to traffic."

Annual registration of all cars is proposed, for the purpose of keeping the registers in a more complete and authentic condition than otherwise would be possible. In order to further limit the risk of failure in identification of cars, it is proposed that the registering authorities shall supply identification plates of uniform and approved pattern, no others being recognized as legal.

In order to establish the correct weights of the cars, for purposes of registration, it is proposed to establish a definition of the weight of the car unladen and laden, and to provide authority for the ascertaining of such weight by the properly constituted persons. The proposed definition is as follows: "For an unladen car, the stores, fuel, water or accumulators necessary or ordinarily used with the car when working, and for laden car, in addition, the full lawful load, including the weight of the driver. When alternative parts or bodies are to be used, the heavier to be taken for the purpose of calculating unladen weight."

The idea of giving public access to the registers at all times, or that of placing copies of the register at local police stations for the benefit of the police and the public at all times, is considered as being unpractical. Also, the suggestion that the government shall control the testing or inspection of vehicles or the further suggested compulsory governing of cars to certain minimum speeds are set aside as being impracticable.

In the matter of the licensing of drivers and the responsibility of owners for accidents, the following position is taken: "We are satisfied that the general principle of the issue of licenses as at present laid down is the best one, at any rate, in this country. If licenses were made a test of competence to drive, it would not only involve the establishment of a new system of examination with officers to administer it, but it would tend to imply a responsibility on the part of the Government, or of the authority administering the test for the driver's capability as such, which, in our opinion, would be wholly undesirable. We are also of the decided opinion from what we have heard that accidents with motor cars are rarely traceable to incompetence to drive, while they are not infrequently associated with undue confidence or occasional recklessness on the part of skilled drivers.

"The proposal to place further criminal responsibility upon owners for the acts of their servants raises a large question. At common law an owner is, of course, civilly responsible for the acts of his servant when engaged on his (the owner's) business. To impose a further criminal responsibility appears to us as undesirable, but we think that when an owner or hirer or any person in a car can be shown to have been abetting the driver in offenses under Section 1 of the Motor Car Act, 1903, he should be equally liable to fine or imprisonment, to withdrawal of license, and to suspension of registration of his car."

As to the required production of the license upon demand, it is considered that the hired driver, possessing the license as his sole qualification to drive, should have it with him at all times. But in order to meet the case where the driver has inadvertently left it behind, provision is made for the delayed production of the license in court within a specified time, upon proof of good and sufficient reason why it is not in hand at the time when called for.

The proposed increase in the size of the characters on the license tag of the cars, is discussed at length, the adoption of uniform shapes of plate under all circumstances, being further recommended. With regard to the marks of manufacturers and dealers, it is suggested that they shall apply not simply to cars on trial, but to all cars in the hands of makers or dealers in the course of their trade.

Offenses against the act are treated in the following manner:

"We think that the guiding principle in dealing with the question of offenses should be to treat motorists as persons lawfully using the highways, and only to create special offenses where the great speed of motor cars and their exceptional powers of escape render such provisions absolutely necessary.

"We recommend that endorsement of a license should be at the discretion of the court in all cases except when the conviction is for any offense under Section 1 or for being drunk when in charge of or when driving a car, in which cases endorsement should be compulsory. That if a holder of an endorsed license can satisfy the licensing authority that he has had no further endorsement on his license for a clear period of two years, during which he has held a license, he may be entitled to receive a clean license. That if a person is three times convicted of an offense under Section 1 within twelve months he should thereby be disqualified from holding a license for twelve months.

"That if a person is convicted of being drunk when in charge of or when driving a motor car, he should for the first offense be liable to a fine not exceeding £10 or to one month's imprisonment, with compulsory endorsement of his license, and for a second offense to deprivation of license for such period as the court may think fit in addition to the other penalties prescribed by the act."

Curiously enough, the question of universal lighting of all vehicles, is discarded as being unreasonable. Says the report:

"We recognize that though lamps of great brilliancy may be a source of annoyance and of some danger to other users of the highway, they also afford on the other hand considerable protection to the traffic at large by notifying the position and approach of the motor car at a great distance and by enabling the motorist to better observe and avoid objects upon the road, but we are unable to offer any comprehensive suggestions on this point. We think that in any amending legislation a motor car other than a motorcycle should be required to carry two front lamps, which should be placed at the extreme right and left of the car. It does not seem necessary to provide for a red light showing to the rear.

"We do not consider that the plan put forward by many motorists that all horse-drawn traffic over the United Kingdom should be compelled to carry tail lights at night is a reasonable or a practicable one.

"We consider that any taxation which it may be thought right to impose on motor cars should be levied in the same way as the carriage tax, and that the sums received from this source should be handed over to the Central Departments of the United Kingdom, to be allocated by them as before described. We suggest that the tax on motor cars should not, as at present, be an addition to the carriage tax, but that it should be a consolidated scale of duties on motor cars graduated according to the weight, and that the carriage tax should cease to apply to motor cars. The fees for registration, and for the issue of licenses, should continue to be payable direct to the registering and licensing authorities."

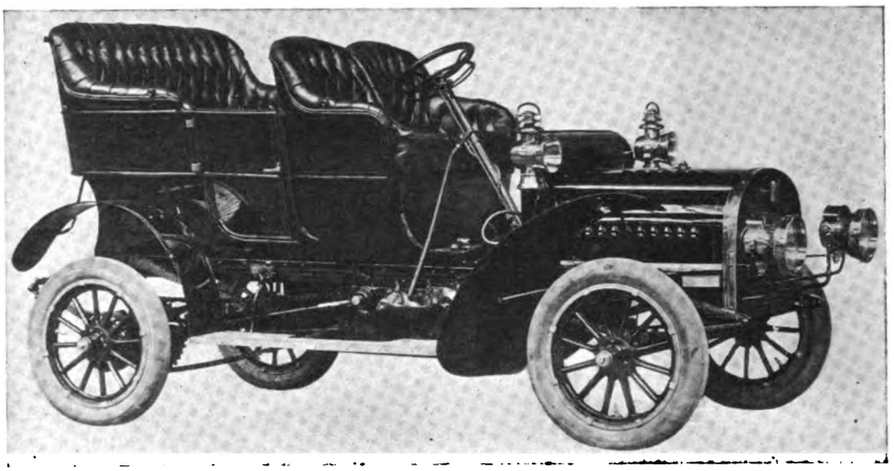
The proposed scale of taxation embraces the following rates: Cars weighing not more than 1,344 pounds, $10.50; cars weighing not more than 1,680 pounds, $15.75; cars weighing not more than 2,800 pounds, $26.25; cars weighing more than 2,800 pounds, $52.00 per year. Trade and public service vehicles are to be taxed at half these rates, and motorcycles are to be taxed impartially $5.00 per year.

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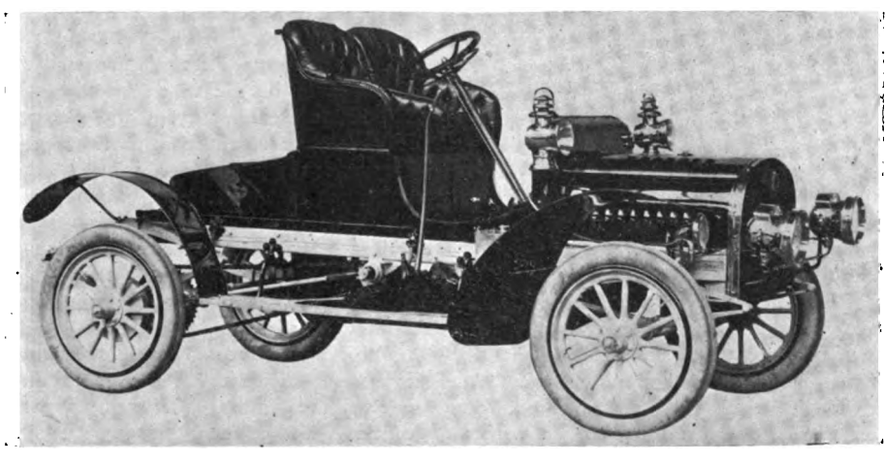
MOST RECENT RAMBLERS

With Same Power Plant Two new Ones are Created—Ingenuity in Bodies.

Already the announcement of the new types which are to figure in the 1907 lists are beginning to appear in various quarters, and it is perfectly apparent that but a comparative minority of the manufacturers will wait until the mid-winter season before bringing out what are to be their staple during the forthcoming year. Among the names of early risers, in this respect, it is not at all surprising to discover that of Thomas B. Jeffery & Co., Kenosha, Wis., which, though not springing any new surprises in the way of startling novelties at this time, yet is bringing out two new types of Rambler, to be known as Type Four and Model 19, which are betterments of those which they replace or supercede,



RAMBLER, TYPE FOUR



RAMBLER, MODEL 19

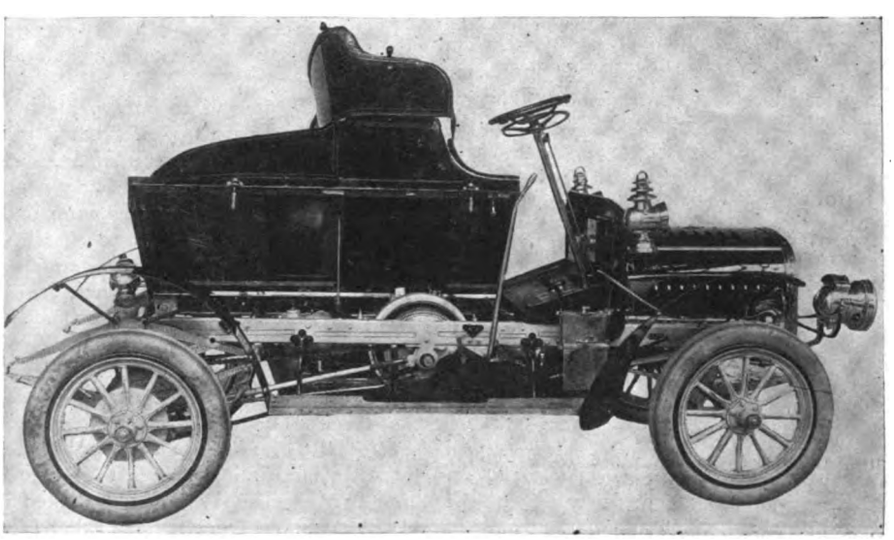
and will appear in the new catalogue as of the most recent vintage.

Type Four car is to take the place of Type Three, the familiar double-opposed machine and comprises what amounts to a re-design of the same thing. In a word, the chassis, barring a lengthened wheelbase, remains about as in the older type, engine, transmission and auxiliaries retaining their places without question as to the effective manner in which they may be expected to perform. The body, on the other hand, will be made on lines similar to those seen in the successful Model 14, this year's four-cylinder of popular style, and will embody its ample proportions, curved metallic dash board, and leather-covered running boards, which will give it an air of distinction all its own. The wheels are to be 30 inches in diameter, and fitted with 4-inch tires.

Model 19, in contrast to this pattern, is intended to satisfy in popular fashion the increasing demand for the capacious two-passenger type, having the engine power of the larger cars, yet light enough and "handy" enough to fulfill the uses of the declining runabout. This car, as a matter of fact, amounts to an adaptation of a runabout body to the Type Four chassis. In a few particulars, alterations have been made, notably in regard to the lubricator which is of the McCord type, having six feeds, with the sight-feed glasses all in sight. A double unit spark coil is supplied which is of the latest pattern obtainable, and the primary ignition current is supplied from a six-volt accumulator, which insures an efficient spark at all times.

Perhaps the most distinctive feature of this machine, and one which certainly will go a long way toward making it a success with the user of experience, relates to the method of affixing the body to the chassis. In this respect, two pairs of hinged catches are employed, all of which are detachable by simply loosening a knurled lock-nut. These serve to hold the body firmly against its bed, at the same time providing a means of readily casting it free from either side, when it may be tilted over, exposing the entire power plant for inspection or repairs as the case may be. By loosening all four of the nuts the body may be entirely removed, and as none of the connections or appurtenances are in any way attached to the body, this task is attended with no other formality. In addition to this, the torpedo back is readily demountable, leaving a flat deck upon which luggage may be stowed with security and convenience.

What may be considered merely as a variation of this type, yet possessing many



RAMBLER, MODEL 19, SHOWING DETACHMENT OF BODY

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advantages to a certain class of users, consists in the arrangement of a side entrance body made to replace the deck, and capable of seating three passengers. When thus equipped, the machine presents practically the same appearance as the Type Four machine, and yet has the merit of the two-cars-in-one principle which is so highly valued by many persons. Incidentally, it may be noted that the first of these machines to leave the factory was delivered to a novice who courageously set forth upon a two-thousand-mile journey through Canada. Happily for himself and the car, the trip was a success in every way, and the incident has gone far toward establishing the reputation of Type 19 as a mechanical success.

Motor Cars as Substitutes for Camels.

While the ox as a beast of burden and draught has been largely supplanted by the horse, and later, by the motor vehicle, which even is creeping into the mountain fastnesses which hitherto have been open only to mule teams, it has been supposed until recently, that as a ship of the desert the camel stands as he has stood for centuries, pre-eminently the fittest. Now, however, it has been demonstrated that by the outlay of a comparatively small amount of capital sufficiently good roads can be constructed so that motor traction can be worked with profit. An experiment which has been under way for some little time in Egypt has proved the utility of the automobile in police work, and the tours of inspection in the vicinities of Alexandria and Cairo which formerly occupied six weeks of time with camels, are now regularly made with motor cars in no more than two.

Where Sunday Repairs are Expensive.

That the proverbial Swiss adversity to the automobile has not as yet altogether succumbed to the march of progress, is apparent from an incident which unhappily befell a tourist who became stranded by the roadside some distance from any town. He was being assisted in repairing his machine by several kindly inclined peasants when he was suddenly set upon by a gendarme who placed him under arrest on the curious charge of compelling them to work on the Sabbath day. Brought to trial, the traveler was condemned and sentenced to a fine equivalent to about $40. On appeal, a little added gall was mingled with his cup, for the decision was affirmed and a further fine of some $37 added to the original penalty.

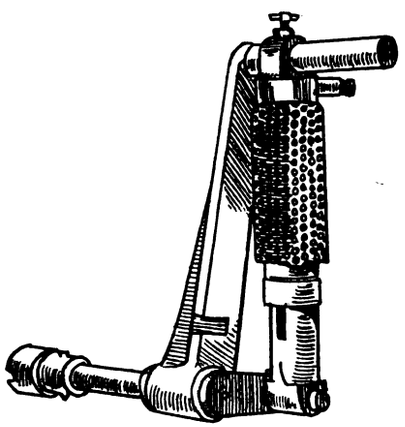
To Compete with the Trolleys.

The Columbus (Ohio) Sight-Seeing Co., is planning to put on several big passenger cars to compete with the street cars in various parts of the city. The cars will stop at any place, upon given signals. If the scheme proves successful, many of the important streets will be similarly equipped with automobile lines.

TO INFLATE THE TIRES

Starting Crank Ingeniously Used in the Process—How the Device Operates.

One of the army of geniuses that has a fondness for inventing combinations, or in other words, devices intended to serve a multitude of purposes, has hit upon the idea of combining the starting handle of the car with an air pump to be run by the engine. The device is apparently not intended to supplant the regulation handle altogether, but is only for use when tire inflation is required. As will be seen from the accompanying sketch, the jaw clutch is adapted



to engage the end of the motor shaft and is itself pinned to a short shaft which revolves on a bearing formed by the large end of the hand crank. This shaft also carries a small crank and pin to which the plunger of the air pump is attached. The upper end of the pump is formed with an extension drilled to slip on the handle of the starting crank proper, as shown, and tightened in place with a thumb nut. By loosening the latter the entire pump may be readily slipped off, leaving an ordinary starting handle which may be used in the usual manner by slipping what otherwise constitutes the crank pin of the pump plunger backward so that it engages the large crank and prevents it from revolving around the shaft.

The pump is said to be capable of delivering a large quantity of air at a pressure of 80 to 90 pounds to the square inch and in order to prevent overheating when run for any length of time, the pump cylinder is surrounded with a coarse metal screen the openings of which are intended to be filled with some deliquescent substance such as calcium chloride in order to keep it cool. This substance absorbs moisture rapidly from the air and is always in a more or less moist condition when exposed. To use this combined crank in both of its offices, the crankpin of the pump is pressed backward until it engages the large crank and the engine may then be started in the usual manner. Once it is working the shaft will begin to revolve and before completing a turn the crank pin of the pump will meet the inclined notch shown on the starting handle and by sliding it will be forced forward springing the jaws of the shaft out of engagement with the motor shaft.

In case it is desired to use the pump, the jaw is kept engaged with the motor shaft and the handle proper must then be held or prevented from revolving by the strap usually employed to keep it out of the dirt of the road. In this way, the short shaft continues to turn with the motor, revolving in the starting handle, while the small crank of the pump is thrown into action, serving to drive the plunger. A ball check valve is fitted in the upper part of the pump just behind the outlet from which a rubber tube may be led to any one of the tires requiring more air. A gauge is a necessary addition to the device in order that the pumping be not continued too long.

Acids and Brass Castings.

Many brass founders are not familiar with the uses to which several acids are adapted in the manufacture of cast brass goods, says The Foundry. Hydrofluoric, nitric, and sulphuric acids are well nigh indispensable in the up-to-date brass shops. Used as a cleaning agent and also as a finishing process, there is nothing that can supplant them. There is too much dependance put upon the slow process of tumbling in cleaning castings, which requires many hours to remove the sand and scale from the work, and then it is only imperfectly done, while the same could be accomplished in a few minutes by the use of the hydrofluoric pickle. Hydrofluoric acid as a cleaning agent for castings has not been in general use for any great length of time, and a few years ago was treated as a secret process by those who understood its value and made use of it in removing sand from castings. The usual formula for removing sand from brass castings is hydrofluoric acid one part and water ten parts.

Substitute for Porcelain.

Asbestos porcelain is the name given by Garros to a substance originated by him, which in every particular equals the properties of porcelain, over which it is claimed to possess several advantages for such purposes as forming the insulating core of spark plugs. Asbestos fibres are very fine, their diameter varying from 0.00016 to 0.0002 millimetre, so that an exceedingly fine powder can be obtained from them. This powder is mixed with water to form a paste, which is kneaded, again mixed with water, dried, kneaded once more, and finally forced into suitable moulds. By heating the objects in a crucible to a temperature of 1,700 deg. C., a product resembling porcelain as regards transparency is obtained. If the same is heated for eighteen hours at a temperature of 1,200 deg. C., a porous asbestos porcelain of pale yellowish or while color results if care is taken to wash the powder previously with sulphuric acid.

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HOW MAGNETOS DIFFER

Dissimiliar Characteristics of the High Tension and the Low Tension Varieties.

Considerable confusion exists in the mind of the average motorist as to exactly what constitutes the distinction between the low tension and the high tension magneto, and this is further increased by the pseudo-explanation that the majority of high tension magnetos in use are really low tension. Not that this is not a true statement of fact, for it is, but that only tends to befuddle the seeker after information. For if most high-tension magnetos, or so-called high tension magnetos and when do they in reality, low tension magnetos, does the converse of this hold good also? In other words, are most low tension magnetos also high tension magnetos and when do they cease to be one and become the other?

That reversing things does not permit of a similar statement of fact, to the effect that most low tension magnetos are also high tension is enough to throw the mind of the beginner into utter chaos. All magnetos look alike to him and save that some are called one thing and some another, without any apparent difference upon which to distinguish them but this change of name, they would all be alike so far as he is concerned. While there is considerable similarity in the appearance of both types in that both consist of the same fundamental essentials combined in the same manner, still there is sufficient difference between them, even as viewed from the exterior, for the experienced eye to distinguish them at a glance.

To start at the very beginning—and a clear conception of just what constitutes the difference can be obtained in no other way—every magneto of whatever type or class employs what is known as a permanent field, that is, one in which the magnetism is constant and does not depend for its generation upon the speed of the armature. This is supplied by what are known as permanent magnets, those which once magnetized retain this unseen and mysterious force for a considerable length of time unabated in sharp contrast to the electro-magnet or soft-iron core round which a coil of wire is wound, in that the object of the designer is to have it attain a powerful magnetic attraction the moment a current is passed through the coil and as quickly lose it, the moment the current ceases.

As ordinarily employed his portion of the machine assumes the familiar form of a group of horseshoe magnets or what is known as a compound magnet. And the reason for the employment of a number of independent magnets instead of one large one of the requisite size is that such a magnet would have but little more power, if any, than one of the smaller size composing the units of which the compound magnet is built. In other words, the amount of magnetism which a piece of steel is capable of absorbing and retaining is not dependent upon its size, hence, the six units comprising the built-up or compound magnet, placed in two groups of three, one within the other, is practically six times as strong as a single magnet of the same size would be. The magnets are grouped with all the north poles on one side and all the south poles on the other.

To the inner faces of the lower ends of these poles are bolted bars of soft iron, the inner faces of which have been bored concentric so as to receive the armature. These are the pole pieces and with them in place the field is complete. Every magneto likewise has an armature and in the majority of instances it is merely a H-shaped piece of soft cast iron, the recesses being filled with a single winding of coarse insulated copper wire while its faces are turned to correspond to the "tunnel" or section of a circle represented by the space between the pole pieces.

Thus far the features described are common to every magneto and with nothing further added to the machine just described than the connections necessary to take off the current generated in the armature, this would be a low tension magneto. That is, it generates a low tension current, the word tension being synonymous with potential and voltage and all meaning the pressure at which the current is delivered. And such a magneto as the one just described in connection with the necessary apparatus for making and breaking the contace inside the cylinder where the spark is to be formed completes a low tension ignition system without anything further, except a wire from each plug to the current collector of the magneto, the other side of the circuit being "grounded" or "earthed" which is the British equivalent for this term, which means that it is connected to the engine or some part of the frame so that the current may find a return path through the metal without the need of duplicating the ignition wiring to accomplish this. In brief, this is the low tension type of magneto, pure and simple; it generates a low tension alternating current and delivers it directly at the contact breakers in the cylinder without the intervention of any auxiliary devices of any nature.

But by taking the current derived from a magneto of this type and passing it through an induction coil, which may be of the non-trembler type, as the alternations of the current itself supply the necessary interruptions in its flow, it will be converted into a current of high potential and if the latter is then returned to a distributing device on the magneto itself, geared to run synchronously at a speed reduction of half, there is completed what is erroneously termed a high tension magneto. Where, as a matter of fact, its only connection with the high tension current is in its office as distributor. Probably the best known example of this type is the Eisemann. The high tension distributor is mounted at the same end of the machine as the current collector and is run by two to one one gearing at the other end, this giving one revolution of the distributor for every active turn of the engine. A single non-vibrating coil is employed, one terminal of the primary circuit being connected to the current collector or brush bearing against the end of the shaft, while the other is grounded. One side of the secondary is also grounded and the other is connected to the hub of the distributor, a wire leading from each one of the contact fingers bearing on the periphery of the distributor to a plug. The same features are characteristic of all so-called high tension magnetos of this type and the arrangement of parts described is likewise generally the same.

From the foregoing it will be evident that the sole distinction between the simon pure low tension type and the so-called high tension is merely in the addition of a distributor so far as the machine itself is concerned. A low tension current is produced in the same manner in the first instance and it is only by means of an independent source of transformation that it is converted into a high tension current. But for the necessity of using an induction coil the entire system would be self-contained in the small compass represented by the magneto itself.

And this is one of the advantages claimed for the high tension magneto proper. So far as the field is concerned, that is the compound permanent magnet and its soft iron pole pieces, already described in detail, this type is also the same as both of the others. To sum up the distinction between the so-called high-tension type of magneto and the high tension type proper, it may be said that the latter merely incorporates the induction coil and actually produces a high tension current in the first instance instead of first generating a low tension current and then transforming it by exterior means and returning it to the machine to be distributed. In other words, the armature of high tension type contains two windings—one serving both as a generative winding and as a primary of an induction coil and the other being secondary. In some machines of this class, the armature with its double winding is revolved; while in others it remains stationary and a slotted cast iron sector closely fitting over it is revolved about it and between it and the pole pieces of the field, thus obtaining the same effect, as is done in the Simms-Bosch magneto. A further advantage is gained by avoiding the disrupting effect of centrifugal force on the finer outside winding of the secondary. As in all machines intended for automobile use the armature is completely encased above and below, the former in the case of the type under consideration forming the condenser.

The distributor is placed in the same position as in the so-called high tension type

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employing an independent transformer and except for the difference in the arrangement of the wiring occasioned by incorporating all the essentials of the ignition system within such small compass, both are the same in this respect.

The low tension magneto then is simply an alternating current generator and of the most primitive type—nothing more or less; the so-called high tension type is the same machine identically to which has been added a distributor and the gearing necessary to run it in sychronism with the revolution of the armature in order that the current impulses and the time of contact of each of the four fingers representing the four plugs of the engine may be simultaneous. There is a further difference in that the latter employs an outside source of transforming or stepping the current up as already described, but this coil being the non-vibrating type is usually concealed and does not add to the identification of the type of magneto. The first or low tension type is totally unencumbered so that its class may be told at a glance. The same is true of either of the types of high tension machines, but as it is customary to closely encase all the working parts with an aluminum case, even including the gearing in some instances, it is not so easy to distinguish between the two as it is between either and the low tension type.

To Start from the Seat.

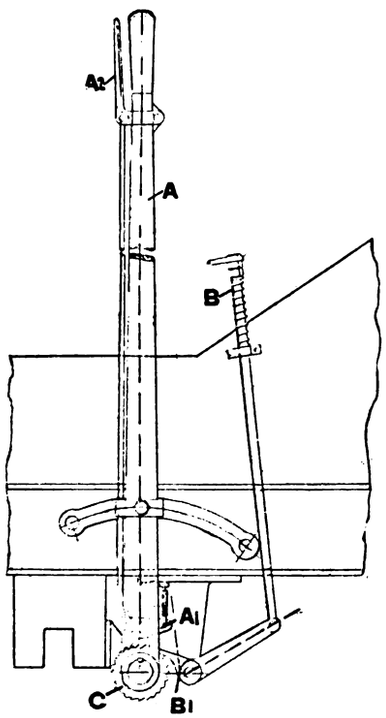
A French inventor has recently perfected a device for starting the motor from the seat by means of the clutch pedal which to say the least, is most pleasingly ingenious, and promises to become a great convenience to the motorist, if put upon the market. By means of suitable linkwork, a short starting shaft at the rear of the motor is brought into play by simply depressing the clutch or brake pedal, or both, which, through a pair of bevel gears meshing with a master gear upon the starting shaft, cause the crankshaft upon which they are mounted, to turn, under the action of a ratchet motion. The depression of the pedal also serves to compress the clutch spring, which, upon the back stroke, returns the mechanism to its original position, at the same time communicating motion to the shaft through the second of the ratchet gears. Upon the motor taking up its cycle, the pedals perform their regular functions.

Protecting the Valves.

A commendable feature of one of the new foreign cars, of otherwise standard pattern, consists in covering in the valve stems with their springs with housings, comprised of flanges on the cylinder castings, fitted with removable inspection plates. This, coupled with the method of construction in other respects, secures the complete enclosure and protection of every working part, serving not simply to protect, but also to silence it.

Provides Long Stroke for Short Arms.

One of the difficulties with the common arrangement of the emergency brake lever is that owing to the limited reach of the driver's arm, it is not possible to secure a very long stroke, and that on this account no very great range of application between the release and full application is possible. To obviate this and provide a greater range



especially for heavy vehicles where the necessity is most strong, the new Critchley-Norris omnibusses are equipped with an arrangement similar in a way to that applied to the trolley car. That is to say, the lever can be worked backward and forward, as suits the convenience of the operator, while the grip of the bands is retained by means of an independent ratchet controlled by the foot.

The manner in which this is accomplished is shown in the accompanying illustration in which the lever A, fitted with a pawl lever and rod A2, is seen to take the regular form. Instead of engaging the teeth of a quadrant, however, the pawl A1 engages teeth upon the sleeve C, to which the brake connections are attached. A second pawl B1 also engages the same teeth and serves to retain the sleeve and hence the brakes, independently of the first pawl, and also regardless of the position of the lever. By this means, it may be worked through any stroke which suits the arm of the operator, even being returned for a new hold if desired, while the secondary mechanism, which is controlled by the pedal B, is used in releasing the tension whenever desired.

The Hardening of Tools.

While the hardening of tools is most frequently done by regularly equipped mechanics, still it sometimes falls to the lot of the motorist himself to do some work of this nature, which without some timely hint, might prove to be somewhat of a tax upon the patience. The common method of hardening and tempering taps and dies as described by Mechanic, may therefore prove of value in a suggestive way:

"Place the tap in a piece of gas-barrel, to protect the teeth and to keep it straight and evenly heated, into a clean fire. Have a bucket of hot water handy. When red-hot, withdraw tap from tube, and plunge the teeth into the hot water for two or three seconds. Do not keep in the water. Let it cool itself naturally. Then polish the shank in the lathe, and the flutes with emery cloth. Then have red-hot tubes ready, hold tap in middle by thin thongs, and let the shank enter one tube, and gradually introduce the other. You will see a faint yellow colour gradually creep on the bright surface, and as soon as you can see it, commence to withdraw the tubes. You may let purple and blue appear on the shank, but not on the flutes, or it will be spoilt, and must harden again. When the rich golden colour has spread over the flutes, dip the teth into hot water for one second. If tubes get cool before colour appears, have other tubes ready, or play on the tube with blowpipe. You then polish the shank in the lathe. Do not allow tubes to touch teeth.

"With dies you heat them red-hot, and dip them into hot water for two or three seconds. Then polish. Then have a piece of flat iron red hot and lay on the die till it is coloured golden. Or use a piece of sheet iron with blow-pipe underneath, withdrawing blow-pipe as colour appears. Keep teeth farthest away from heat. Dip in hot water one second."

To Test Fit of the Piston.

A good method of testing the fit of a piston and its rings in the cylinder is to lay the latter upon its side on a bench, and then attempt to draw out the piston with a sharp jerking movement. With properly fitting parts, this should not be possible. Hence the degree of resistance offered to the effort may be taken as a measure of their condition.

Effect of Clutching too Quickly.

Letting in the clutch too quickly or otherwise unduly straining the driving mechanism is not unlikely to result in so twisting the square shaft in the gear box that the sliding sets cannot be moved into or out of position. On this account, if for no other, it is wise to be cautious in working the pedal.

Cold Plug in Hot Engine.

When it becomes necessary to insert a cold spark plug in a hot engine, care should be taken not to set up the thread too far; when this is done, the nicest possible "shrink" fit is made, and the subsequent removal of the device becomes a work of delicate functions.

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FARSON AT FOOTLIGHTS

Makes his Debut on Chicago Stage and Wins Applause and Wager.

John Farson, president of the American Automobile Association, and so-termed Chicago millionaire motorist, churchman, banker, street railway magnate and a thousand and one other things, now has a new role—that of a full-fledged actor man. He made his debut before the footlights last Wednesday night in a Chicago playhouse at the presentation of the "Vanderbilt Cup," and incidentally "made good," receiving such an ovation as would make glad the heart of the longest haired Thespian who reminisces of the time when he understudied to Booth, and which would tend to make him forget the half-season's board bill he owes his landlady.

When in the second act the chauffeur, Gaspard, who must drive the "Green Dragon" to success to save the heroine from an ignoble marriage, deserted the car and when "A. A. A." Farson sprang into the machine and sent it along the imaginary Jericho tunrpike at the rate of two miles a minute, the audience stood up and cried aloud in ecstacy. Side by side the two automobiles raced at a pace never known on the smoothest macadam. Tom Cooper, the professional chauffeur, who must win the race for the rival of the hero for the hand of the pretty leading lady, scowled through goggles at the gentle faced Farson, who held the levers of the opposing machine.

The pace grew hotter. The wheels smoked with the revolutions. Farson drew an inch to the front. There was more cheering. He gained a few inches more. The audience was breathless. Then the racing automobile swept around the curve and passed under the wire a winner. The heroine sprang to greet her deliverer and was folded in the arms of Farson.

There may have been wilder audiences than that which applauded the close of this exciting scene, but it does not seem possible. The leading lady blushed and then led the bewildered banker to the footlights, where he stood blushing like a school boy.

"All right for you, John," called out a member of the Automobile Club.

"How did the pace strike you?" inquired another.

"What will the church folks say?" came out of a box.

"For such a lovely girl as Miss ——— who would not take chances?" stammered Farson, with such genuine enthusiasm that the laugh which started changed to applause.

It was a great triumph for John Farson. He said so in a speech before the curtain.

"I am proud of this reception," said the banker and automobilist. "Such a reception at my first appearance on any stage, especially when I am known as the Methodist-Congregationalist-Episcopalian of Oak Park, is flattering indeed. I want to thank the management for the magnificent way in which they have staged the piece and the actors for their universal good support. When next I appear in your beautiful city ———"

Then Mr. Farson,finding he was getting stage fright, retired to the wings and later watched the remainder of the play from the vantage of a box.

A large delegation from the Chicago Automobile Club was present to give the budding actor a noisy hand, for it is understood that Farson's appearance on the stage was the result of a wager between local automobilists that the president of the American Automobile Association would not have the "nerve" to face a theatre full of people in the role of a Thespian. Whoever bet that way certainly had to pay for the dinners and the perquisites.

Why Gertie Went to Jail.

Gertrude Loverick who, despite her novel-like appellation, is as black as the ace of spades and somewhat of a misanthrope besides, became so enraged at the seeming gross inequality of the human color scheme that she determined to vent her spleen and satisfy her inborn malevolence in prosaic fashion. Gertrude lives along the Ocean Parkway, Brooklyn, and after assidious labor she stacked up a pyramid of ammunition composed of mud balls, in color as black as Gertrude's superficial nature frock. With these she was wont to pelt passing automobilists, and laughed with fiendish glee when a well aimed missle left its Nubian-like stain. James Donald, a motorist, did not, however, relish this preseasonable sport and he put a summary stop to Gertrude's play by having her incarcerated in the Coney Island police station.

Paid $10 for a $10,000 Car.

Once each year members of the New York stock exchange divert their attention from "bulls," "bears," and other animals indigenous to Wall street, long enough to hold a raffle. This year the drawing was for a $10,000 automobile, and the lucky number, "76," was held by Robert L. Stevens, of Hoboken. His ticket cost him just $10, and when informed of his luck remarked that the "market looked 'bullish.'"

Why Glims Must be Doused on Ferries.

In future, lights on automobiles that are being transported on ferryboats between Philadelphia and Camden must either be covered or extinguished, according to an order sent out last week to shipping men from the Philadelphia office of steamboat inspectors. This precaution has been taken with a view to preventing pilots from mistaking the lights on automobiles for signal lights on other vessels.

LIKE COACHING DAYS

Automobile Touring has Revived Springfield's Glory—Effect on Hotels.

After an interim of some twenty years, Springfield is regaining its old-time position as an all-night stopping place for a certain class of well-to-do people, who travel to and fro in their automobiles as did their forefathers on horseback or in the rumbling stage coach or the cumberous family carriage loaded down with guests and baggage, says the Springfield (Mass.) Republican. Years ago the coming of evening would see the stage coach dash up in a cloud of dust to the inn doors to disgorge its motley freight. Now and then up would clatter single riders or family parties a-journeying to visit relatives along the roads to Boston or New York. There would be bawling of orders, hospitable greeting by host and the hum of conversation, the drinking of mugs of ale and a gathering around the supper board. Later in, the tap-room would be good stories and exchanging of tales over wine or steaming toddy. The newspaper of each man's observation and knowledge would be read and would be followed by grave discussions on politics and the crops and kindly gossip. In the morning came an early start on another stage of the journey.

Came the railroad and did away with this, yet, despite the changes in routes and ways of travel and the transition from inn to hotel, summer evenings saw in Springfield something suggestive of the departed order. For it chanced during a number of years that travelers bound for the White mountains and northern points found no night train to carry them further and they must needs wait over night. Rare was the summer evening when the Massasoit reception room was not comfortably filled with groups of people waiting supper and bed time and insisting that the clerk must be sure to awake them in time to catch the morning train. Then came through trains and in a day the hotels became modern, mere stopping places for visitors and business men, no more the night resting places. Nowadays another suggestion of the old days has come, for the automobile has again made Springfield a "night stop."

At any time in the day huge touring cars, whose owners are on their way to distant resorts, are a common sight, standing in front of some hotel entrance. The late afternoon sees the first arrivals of the stream of "night stoppers." A big machine rolls smoothly up to the hotel door and disgorges a dusty load of passengers, who hurry to bath and dinner, while the chauffeur takes the car to a nearby garage and sees that it is in condition for a smart spin or the next day's run. Next come man and

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wife in their compact runabout, oftentimes accompanied by another married couple. Up glides a giant car loaded down with father and mother, a daughter or two, several friends. After them comes a crowd of business men taking a short vacation. Now and then up glides the first car of a tour, or perhaps a merry party comes in two or more cars. The men often first seek the bar for something cooling and appetizing, while the women scurry to remove the stains of travel. At the table the old-time conversation has given way to motor talk, anecdotes, tales, experiences, each and every one centering around some automobile. Every one seems to talk automobile, think automobile and dream automobile. Automobilists sit around the lobby smoking final cigars and all taking "makes," "speeds," etc., ad infinitum. Some roam about town or go to the theatre, but the majority seek their beds early, that they may get a good start in the morning.

All these tourists are well to do, for the cost of carrying a party of guests around or of journeying with even a single companion is great. The cost of tires, repairs, and hotel bills is too large for any but a well-filled purse. About a third of the owners drive their own machines, the others relying on chauffeurs. One wealthy man was seen the other day driving his car with his wife beside him, while in the rear seat two chauffeurs took their ease. When asked why he didn't let his chauffeurs do the work, he replied that all he wanted them for was to fix tires and repair machinery while he sat and watched them. The driving he thought was too good sport to leave to them. Occasionally a maid will be brought along, where there are children, or a number of women, but generally people realize that children are too tender for the strain of long automobile tours, and that a maid can be dispensed with and the room she would take up given to some friend. Most of the automobiling parties are family affairs, with perhaps a young man or family friend, though quite a number of married people ride around the country with another married couple along. There are occasional instances of two men using a car, and often large parties or prize tours swell the numbers of the automobile travelers. The noticeable thing about this automobile traveling is the way in which it seems to make old people young and revive in them a measure of the enthusiasm of youth. The independence of the life, the casting aside of cares, the exhiliration of the rapid progress, combine to draw more and more people yearly into the automobile traveling class.

The growth of this pilgrimage fancy has proved a positive boon to the city and town hotels, which for years past have seen a great dullness during the summer months, but now do as much business in the warm weather as at any other time of the year. The bulk of the arrivals are Fridays, Saturdays and Sundays, particularly Saturday afternoons and evenings. Sundays many automobilists and their families come in from the surrounding towns and cities to get their dinners, liking the brisk run in and the race back in the cool of the evening, so that there is a great demand for both rooms and meals at all the hotels favored by automobilists. Indeed, there is hardly ever a time when an automobile is not standing in front of the Worthy, the Cooley or the Massasoit, and often it has happened that Worthington street for some distance above Main has been well lined with waiting cars. Most of the parties stop only over night, but there are some who spend several days here, taking short trips through the surrounding country, while others come to visit the Knox automobile works or the Stevens-Duryea works in Chicopee, either to order cars or to wait for cars already ordered.

Springfield possesses a peculiar advantage as regards the inducing of automobilists to stop, for it is the natural half-way place on the route from New York to Boston, and the natural stopping place for a night's rest before going on into the Berkshires. Every good route from New York to the White mountains and from Albany to Boston passes through Springfield, while because of the condition of the roads it is the best route from New York to Boston and the Maine resorts. It's a good day's automobile journey from New York to Springfield, from Albany to Springfield and from Boston to Springfield, and when a party comes here from New York or Boston to Springfield they hardly care to drive to Pittsfield or other gateways to the Berkshires, but must needs stay all night, so as to go on fresh in the morning.

The large amount of traveling by automobile is having a good effect on the hotels throughout New England, for these travelers require the best rooms, with baths and good service, so that other travelers benefit. This travel is constantly growing heavier, and next year will see even greater prosperity for the hotels of this and other favorably situated cities.

To Make Identification Easier.

A new method of identification recently adopted by the German postal authorities, will doubtless prove of great value to tourists, especially, as though primarily designed for use in the postal department alone, it will doubtless stand good in hotels and banking houses.

It consists of a card or folder upon which is printed its number, the date of its expiration at the end of a year, the name, profession, and residence of its owner, the date of its issue, and the seal of the postoffice issuing it. Within the fold is pasted a small unmounted photograph of the owner. A small cancellation stamp is pasted partly upon the photograph and partly upon the page. Opposite is a description of the applicant, his general appearance, color of hair and eyes. His birthplace and age are also given, and he is required to sign the card. The last page of the little folder describes the uses to which the card is to be put and the means of obtaining it. The fee is 50 pfennigs (12 cents). The card is to be used in obtaining mail where the owner is not known, and in case he changes his appearance so that he no longer conforms to the description a new card must be issued after the proper identification of the applicant.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50 cents. The Motor World Publishing Co., 154 Nassau Street, New York.

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The Week's Patents.

826,914. Vehicle-Wheel. Leo A. Allwine, Lorain, Ohio, assigignor of one-half to Leo C. Worden, Lorain, Ohio. Filed Dec. 2, 1905. Serial No. 289,955.

Claim.—1. The combination in a wheel employing relatively movable and non-movable portions, of an elliptical hub having a suitable box, a socket on the hub, an elliptical cushion seated in the socket, a rim surrounding the cushion, plates fixedly secured to one portion of the wheel, adapted for holding the rim on the cushion, and a felly suitably supported on said rim, substantially as described.

826,936. Carburetter. Ozro H. Hinds, Le Mars, Iowa. Filed Nov. 28, 1905. Serial No. 289,490.

Claim.—The combination of the tank, an air-supply pipe, a coupling on said pipe, couplings connected with the coupling, branch pipes leading from the couplings and provided with devices for discharging air into a body of gasolene and also with air-discharge openings or outlets independent of those which discharge to the gasolene, and valves controlling said independent air-discharge opening if the several branch pipes, substantially as set forth.

827,020. Cushion-Tire. Thomas Howard, Philpot, Ky. Filed Sept. 28, 1905. Serial No. 280,524.

Claim.—A cushion tire comprising an outer member of channel shape, open at its inner periphery, an inner member movably engaged at its outer portion within the channel, springs located between the outer face of the inner member and the outer member, said inner member having lateral ribs arranged to receive the inner edges of the outer member thereagainst, to limit the inward movement of the outer member, and filling-pieces secured to the outer member and extending between the outer member and the side faces of the inner member.

827,058. Automobile. Lewis R. Compton, East Orange, N. J., assignor, by direct and mesne assignments, of one-half to Edward Cliff and one-half to Albert T. Plummer, New York, N. Y.; Jane Cliff, administratrix of said Edward Cliff, deceased. Filed Mar. 5, 1906. Serial No. 304,177.

Claim.—1. In a vehicle, the axle-casing entering the hub of the wheel, a spring support therefor within said hub, and a drive-axle connected to said hub; substantially as set forth.

827,091. Friction-Clutch. Gustave E. Franquist, New York, N. Y. Filed Apr. 10, 1905. Serial No. 254,657.

Claim.—1. A friction clutch or brake comprising a drum of uniform peripheral diameter and a plurality of straps surrounding the same, the said straps occupying planes at right angles to the axis of the drum and connected together at their ends whereby strain applied to the end of one strap will be successively transmitted to the others so as to clamp the periphery of the drum.

827,094. Carburetter. William W. Grant, Brooklyn, N. Y. Filed Apr. 11, 1905. Serial No. 254,951.

Claim.—1. In a carburetter, the combination of a casing, an air-valve therein, a fuel-inlet nozzle, a needle-valve carried by the air-valve to close the nozzle, and means for simultaneously actuating the air-valve and moving the nozzle.

827,095. Differential Gearing. Emmet P. Gray, Cincinnati, Ohio, assignor to Gray Manufacturing Company of Detroit, Detroit, Mich., a corporation of Michigan. Filed Apr. 18, 1904. Serial No. 203,730.

Claim.—1. In a differential gear, the combination of two alined shafts arranged end to end, two spur-gears disposed side by side and fast respectively to the ends of said shafts, a two-part drum or casing surrounding said gears and held from endwise movement by the same, a sprocket-wheel made fast to said drum or casing by internal projecting lugs fitting cut-out portions in the drum to form interlocking means to prevent shearing or twisting strains, intermeshing pinions in pairs within said drum of casing, one of each pair engaging the spur-gear on one side and the other the spur-gear on the opposite side, and clamping-bolts extending through the end walls of said rum or casing to hold the parts together and serve as bearings for the intermeshing pinions, substantially as described.

827,108. Sparking Device. William W. Morse, West Orange, N. J. Filed June 7, 1902. Serial No. 110,619.

Claim.—1. In a sparking-plug in combination, an exteriorly-screw-threaded tube having at its lower end a plurality of lateral openings and a longitudinally-adjustable sparking terminal opposite said openings, a cup-shaped nut adapted to be screwed on said tube and larger at its bottom than the upper end of said tube to form a shoulder adapted to be seated on an engine, the lower portion of said nut extending inwardly to form an internal shoulder smaller than the interior of said tube, a central plug of insulating material within said tube and seated on said latter shoulder and having a longitudinal perforation, a ring seated in said cup-shaped portion of nut, and an insulating-plug seated with said ring and separated a short distance from the internal sides of said nut, and a screw-threaded rod passing through both of said plugs and provided with one or more nuts thereon to adjust the same longitudinally, and carrying a second sparking terminal at its lower end adjacent to said other terminal.

827,117. Power-Transmission Device for Motor-Cars. Wilhelm von Pittler, Berlin, Germany. Filed Dec. 12, 1905. Serial No. 291,391.

Claim.—1. A power-transmission device comprising a friction-wheel, a shaft therefor upon which it is longitudinally movable, means for shifting such wheel longitudinally, comprising two bevel-gears mounted loosely on the shaft, brake-disks mounted with said gears respectively, independent brakes thereof, a bevel-gear mounted transversely with respect to the shaft and in engagement with the first-named bevel-gears, a screw-shaft supported by the first-named shaft and engaging the friction-wheel to shift the same longitudinally, and connections between the last-named bevel-gear and the screw-shaft to rotate the latter from the former.

827,119. Variable-Speed Mechanism. Arnold W. Pupke, New York, N. Y. Filed Oct. 3, 1905. Serial No. 281,121.

Claim.—1. In a mechanism of the class stated the combination of a motor-shaft and a driven shaft, a gear upon the motor-shaft, another gear upon the driven shaft, speed-differentiating gears interposed between them adapted to independent movement relative to each other, none of which are in mesh with both the motor-gear and the driven gears at the same time, mechanism brought into action by the resistance of the load to the power, whereby the differentiating gears are caused to shift position relative to each other and means to regulate and control such shift of position.

827,265. Signal for Vehicles. Arthur H. Rosing, Paris, France. Filed Nov. 15, 1904. Serial No. 232,872.

Claim.—1. In a signal for vehicles, the combination with a centrifugal governor of means for operating the said governor from one of the wheels of the vehicle, of a frame arranged at the back of the car and provided with a window or opening, a movable board in said frame carrying two words a second board also movable in the frame and carrying another word a lever attached to the first board and connected by a cord to the sleeve of the governor, another lever operating the second board, a cord attached to this second lever, an arm attached to the cord and a ratchet-gear mounted frictionally on the sleeve of the governor, substantially as described.

827,297. Alkaline Battery. Thomas A. Edison, Llewellyn Park, N. J., assignor to Edison Storage Battery Company, West Orange, N. J., a corporation of New Jersey. Filed July 21, 1904. Serial No. 217,539.

Claim.—In a battery, the combination with the electrodes, and an alkaline electrolyte, of an insulator or support exposed to the action of the electrolyte, said insulator being composed of rubber simultaneously free of active or uncombined sulfur, whereby the formation of sulfids is avoided, substantially as set forth.

827,302. Internal-Combustion Engine. Arthur B. Goodspeed, Roseville, N. J., assignor to Industrial Development Company, New York, N. Y., a corporation of New York. Filed Apr. 8, 1905. Serial No. 254,426.

Claim.—1. In an internal-combustion engine, the combination of a cylinder, crank-casing, a piston, a crank-shaft, a connecting-rod, an intermediate portion of the casing having its ends conformed to the cylinder portion and the crank-casing respectively, and the portion between its ends reduced in width to conform to the path of the connecting-rod, and supporting-rods secured to the cylinder portion of the crank-case respectively, substantially as described.

827,303. Valve-Gear for Internal-Combustion Engines. Arthur B. Goodspeed, Roseville, N. J., assignor to Industrial Development Company, New York, N. Y., a corporation of New York. Filed Apr. 8, 1905. Serial No. 254,427.

Claim.—1. In an internal-combustion engine, the combination with an inlet-port, of a two-part valve to co-operate therewith and comprising a central part and an outer, annular part seated upon said central part and movable independently thereof, and said central part co-operates directly with said port to close the same and means to supply air and fuel for admission by said parts respectively, substantially as described.

827,304. Internal-Combustion Engine. Arthur B. Goodspeed, Roseville, N. J., assignor to Industrial Development Company, New York, N. Y., a corporation of New York. Filed Apr. 8, 1905. Serial No. 254,428.

Claim.—1. In an internal-combustion engine, the combination of a working cylinder and piston, a primary compressor, an auxiliary compressor receiving air from the primary compressor and delivering air to the working cylinder, and means whereby

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air may be delivered from the auxiliary compressor to the primary compressor, substantially as described.

827,316. Friction-Clutch. William E. Magie, South Milwaukee, Wis., assignor to The Bucyrus Company, South Milwaukee, Wis., a corporation of Wisconsin. Filed Oct. 28, 1904. Serial No. 230,324.

Claim.—1. In a friction-clutch, the combination of a flanged disk-like driver secured to a rotating shaft, a driven housing loose on the shaft and having a flange encircling that of the driver, a split ring carried by the flange of the driver, a collar sliding on the shaft and having a toggle-like yoke pivoted thereto, a block secured to the ring, and a pin pivoted to the block and having a screw-threaded stem taking into an opening in the yoke.

827,321. Cushion-Tire. William H. Parham, Paducah, Ky. Filed Oct. 30, 1905. Serial No. 285,039.

Claim.—1. A tire of the class described, comprising a flexible casing, a resilient hoop or ring arranged at the outer wall of the casing for sustaining the tread of the tire, and means for compressing the sides of the flexible casing to vary the tension of the resilient hoop or ring.

827,377. Wind-Guard for Motor-Vehicles. George B. Levy, Chicago, Ill., assignor to Studebaker Brothers Manufacturing Company, South Bend, Ind., a corporation of Indiana. Filed Dec. 16, 1905. Serial No. 292,082.

Claim.—1. In a wind-guard for motor-vehicles, the combination of a bent channel-bar comprising a top member and side members, a lower sash firmly secured in the lower end portions of the side members, spaces being reserved to permit the upper sash to be lowered at the side of the lower sash, an upper sash surmounting the lower sash and occupying the same vertical plane therewith, said upper sash being shiftable to enable it to drop at the side of the lower sash, and means for clamping the upper sash in its elevated position for the purpose set forth.

827,382. Friction Clutch Mechanism. Thomas S. Miller, South Orange, N. J. Filed May 14, 1903. Serial No. 157,107.

Claim.—1. In combination with the driving and driven members of a clutch, a master-spring tending to set the clutch, a subordinate spring tending to unset the same and pinching mechanism whereby the master-spring is restrained independently of the rotating parts.

827,404. Process of Manufacturing Tire-Covers. Emil Zohlen, Crefeld, Germany. Filed Sept. 13, 1904. Serial No. 224,347.

Claim.—1. The herein-described process of manufacturing tire-covers, which consists in forming from a hide a concentric ring, then imparting to the ring the form for the cover to be produced, than protecting the edges of the ring, and finally subjecting the ring to the action of a tanning liquid.

827,454. Variable-Speed and Reversing Gear. Harry W. Leonard, Bronxville, N. Y. Filed Oct. 7, 1902. Serial No. 126,367.

Claim.—1. In a variable-speed gear for motor-cars, the combination of three shafts whose axes are fixed relatively to each other and two of said shafts having their axes axially alined, means for coupling the two axially-alined shafts so that they will rotate at the same speed, a plurality of axially-movable elements each being adapted to effect two different power transmitting connections, a plurality of axially-fixed elements, and means for axially moving said movable elements for obtaining three different geared forward drives.

827,494. Vehicle-Wheel. George W. T. Akehurst, White Marsh, Md. Filed Nov. 16, 1905. Serial No. 287,637.

Claim.—The herein-described vehicle-wheel having two circular plates with circumferential abutting flanges, on the rim edge of which are sockets for the ends of spokes, said plates at their central part being spaced from each other and forming a chamber of uniform width; a hub in said chamber of uniform width and having a circumferential channel; a pneumatic ring-tube seated in the said hub-channel and bearing against the two circular plates directly inside of the spoke-sockets, and bolts connecting the two plates at points within the circumferential channel of the said hub.

827,511. Rotary Explosive Motor. Samuel Denton and Edward S. Veen, Great Falls, Mont., assignors to Robert P. Reckards, Great Falls, Mont. Filed Feb. 15, 1905. Serial No. 254,733.

Claim.—1. The combination of a flat stationary piston, having inlet and exhaust passages entering the same and transverse branches leading to the opposite sides of the piston near one edge thereof, and the piston having a transfer-port extending from one to the other side thereof near the edge opposite the inlet and exhaust ports, a valve commanding the transfer-port, a rotating cylinder inclosing the piston, an abutment operating in the cylinder, and means for igniting the explosive charge.

827,556. Vehicle-Tire. Frank E. Newcomb, Cleveland, Ohio. Filed Dec. 9, 1905. Serial No. 291,088.

Claim.—1. A vehicle-wheel having a felly and a resilient ring thereon, and an outer rim which forms an inclosing casing for said ring and extends inwardly on each side to lap the edges of the felly, and a spring driving connection between the body of the wheel and the said inwardly-extending portion of the rim, allowing the latter to yield to tangential strain, said connection being independent of the resilient member.

827,638. Roller-Bearing. John M. Horger and Simeon D. Horger, Newton, Tex. Filed May 6, 1904. Serial No. 206,718.

Claim.—The combination with a spindle, of a wheel-hub, a cylindrical box fitted within the hub and having radiating flanges at its ends standing against the corresponding ends of the hub, means for holding the boxing against rotation within the hub, retaining-rings disposed within the ends of the boxing in spaced relation thereto, flanges carried by the rings and riveted against the outer faces of the flanges of the boxing, and friction-rollers having reduced ends held between the rings and boxing and lying with their body portion in contact with the boxing and spindle.

827,687. Electrically-Operated Vehicle. Henry Ducasse, Paris, France, assignor to Société Anonyme l'Electrique, Paris, Franc. Original application filed Dec. 31, 1904. Serial No. 239,137. Divided and this application filed Feb. 15, 1906. Serial No. 301,180.

Claim.—In an electric vehicle the combination of a cross-bar, a steering-wheel, a commutator, starting mechanish, and a lever for operating said mechanism, said last-named members all being mounted upon a cross-bar and grouped together as a unit.

827,698. Automatic Alarm and Stopping Device for Engines. Daniel B. Adams, Summitville, N. Y. Filed Sept. 30, 1903. Serial No. 175,173.

Claim.—1. Te combination with an internal-combustion engine having an electric ignition-circuit, of an electrically-operated alarm, and means automatically operated for operating the same from the ignition-circuit.

827,742. Variable Speed and Reversing Gear. Franz Markgraf, New York, N. Y. Filed Feb. 11, 1903. Renewed Jan. 13, 1906. Serial No. 295,902.

Claim.—1. In a variable-gear, the combination of a driving-shaft, two or more gears of different diameters keyed thereon, a driven shaft, a corresponding set of gears sleeved thereon, clutches for locking said gears to the driven shaft, and means for shifting said driven gears into and out of mesh, substantially as described.

827,759. Gas-Engine. Harry J. Smith, Buffalo, N. Y. Filed Feb. 2, 1903. Serial No. 141,408.

Claim.—1. A gas-engine comprising a cylinder, a piston reciprocating in the same, said cylinder having a fuel-port at one end, an exhaust-port at its opposite end and a transfer-port connected with the fuel-port and arranged to be uncovered by the piston at the end of its forward stroke, a fuel-valve controlling the fuel-supply, an exhaust-valve controling the exhaust, and an actuating mechanism for the exhaust-valve constructed to permit of varying the operation of the same, substantially as set forth.

827,763. Steering-Gear for Self-Propelled Vehicles. James H. Taylor, Pawtucket, R. I., assignor, by direct and mesne assignments, of two-sixths to Henry J. Bailey, fifteen one-hundredths to Henry S. Cole, and one-sixth to Hugh J. Carroll, all of Pawtucket, R. I. Filed Sept 15, 1905. Serial No. 278,617.

Claim.—1. In a steering-gear for self-propelled or motor vehicles, the combination of a steering-engine operatively connected with the steering-axle of the vehicle, a manually-actuated valve for admitting fluid under pressure to said engine and exhausting it therefrom to operate the engine and effect the steering of the vehicle, and means movable in unison with said engine so arranged that the steering may be effected by the engine itself and also by manual power independently of or combined with said engine.

827,766. Motor-Vehicle. August Weiss, Cologne, Germany. Filed Aug. 27, 1905. Serial No. 257,744.

Claim.—1. In a motor-vehicle, a dynamo-electric machine operatively connected to each driving wheel and having its armature and field-magnet both rotatable one of the rotating parts of each machine being rigidly connected to the corresponding rotating part of the other, and a prime motor coupled to said parts, and the other rotating parts being conected to the driven wheels independently of each other, a further dynamo-electric machine in electrical connection with the former machines, one part of which is stationary, while the other part is coupled with the prime motor, means for varying the electromotive force induced in the said stationary dynamo-electric machine or for cutting out the same, thus causing the said stationary dynamo to operate as a motor or a generator, substantially as described and for the purpose set forth.

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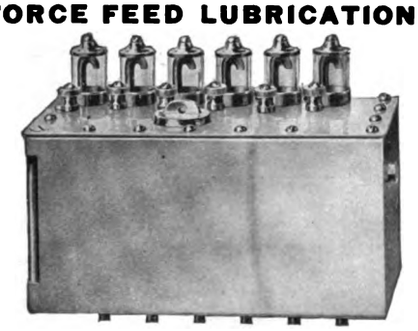
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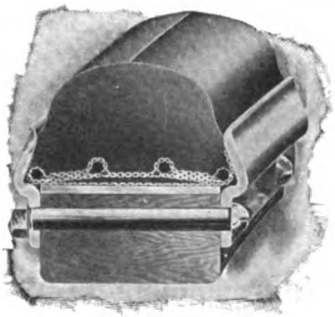
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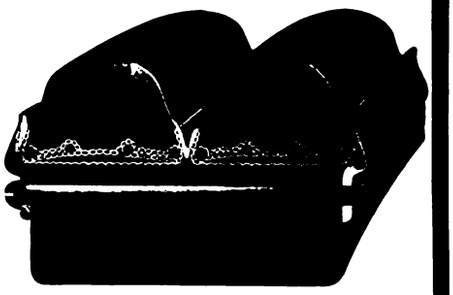


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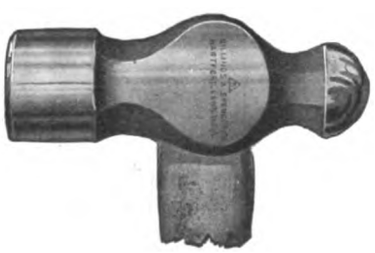
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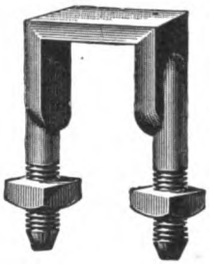
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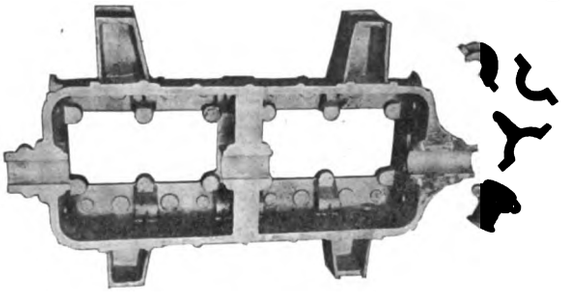
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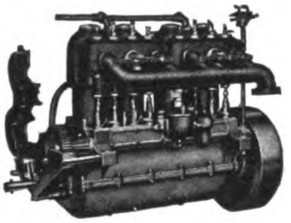
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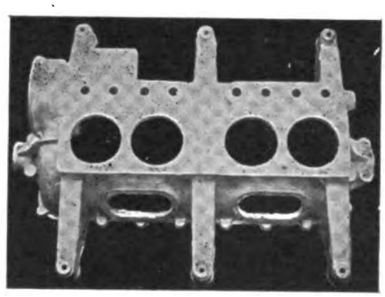
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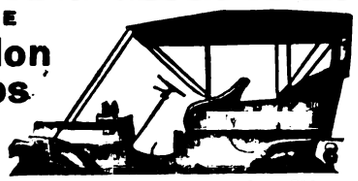
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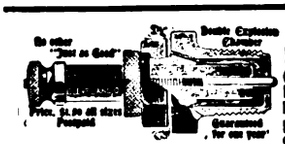
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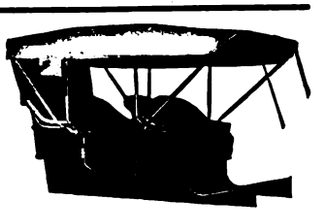
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Price, $400.
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Carriage Builders, NEWARK, N. J.

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In the Glidden Tour

the cars equipped with Diezemann Shock Absorbers were not those that finished with broken springs, broken axles, or bursted tires. The Diezemann Shock Absorber insures proper spring control and prevents accidents. It is an improvement over all other forms of shock absorbing devices. The exclusive self-lubricating features places this appliance in a class by itself.

Diezemann Shock Absorber Co.
1307 Hudson Street, HOBOKEN, N. J.

THE NEW HOTCHKISS

Built like a gun by gunmakers.

THE DE LEON
A French Car at American Price.

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From Steel Bar To Finished Car

30 H. P. 5 Passenger, $2,750.
45 H. P. 7 Passenger, $3,500.
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The One CARBURETER That Gives
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The Baldwin Chain Company
— MAKE —
Automobile Chains, Sprockets, Spur and Bevel Gears.
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Baldwin Chain & Mfg. Co.,
Worcester, Mass., U.S.A.

Current Always At Your Command



The engine on your motor car or boat gives the most power only when your ignition current gives big, hot sparks. With an APPLE BATTERY CHARGER on your car, you have a steady, sure source of current on which you can always rely. Write for full information to-day.

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THE MOTOR WORLD PUBLISHING COMPANY,
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Enclosed find $2.00 for which enter my subscription to

The Motor World

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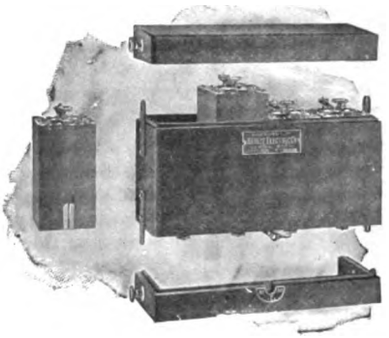
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WILL INCREASE THE POWER OF YOUR ENGINE FROM 10 TO 15%.

Are the most thoroughly constructed coils on the market producing the hottest spark and having the most rapid vibrator.



ARE GUARANTEED AGAINST BURNING OUT.

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LONGEST LIFE

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These cells are being used by AUTO OWNERS in preference to ALL OTHERS.

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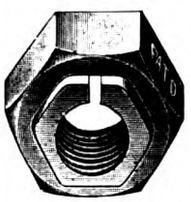
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Be Sure Your Car is Equipped with Them.

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Columbia Lock Nuts will not shake off American made cars, neither will they shake off cars of foreign make. We are prepared to furnish Columbia Lock Nuts with Metric thread for French cars and Whitworth threads for English cars. Nuts that will not shake loose are an absolute necessity. More trouble and loss of life result from nuts working loose than from any other known cause.

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—FORD—

FORD MOTOR CO.,

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THE LAMBERT Famous Friction-Drive Car.

Models and Styles to Suit the Purchaser.

PLEASURE CARS, RUNABOUTS and TOURING CARS, and Lambert Patented Friction Drive COMMERCIAL TRUCKS. Prices $900 to $3000. Write for particulars.

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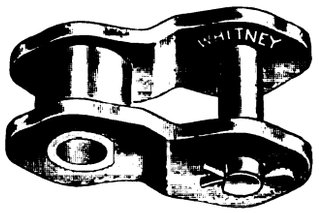
Members A. M. C. M. A.



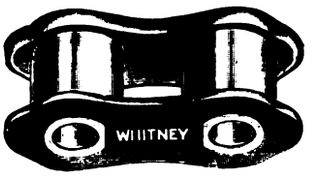
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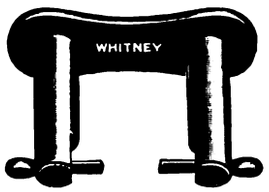
Connecting Link



OFFSET LINK



Assembled Center Block

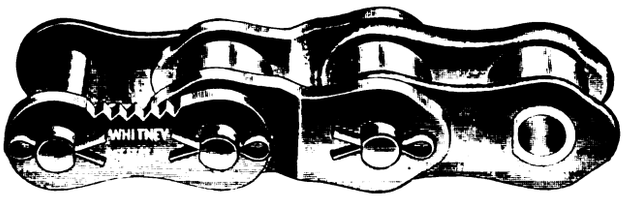


Side Link with Rivets Assembled



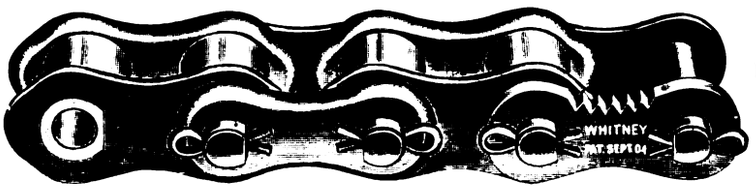
Side Link Plain

"Whitney" Offset Links for use when it is required to shorten or lengthen a chain only one Link.

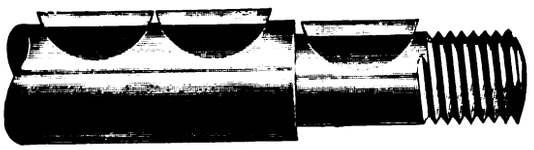


Against claims made by Competitors, we submit the following list of Motor Car Manufacturers using "WHITNEY" ROLLER CHAINS and STANDARDS. Is it not time for everyone to admit that "WHITNEY" STANDARDS for ROLLER CHAIN dimensions are now the American Standards?

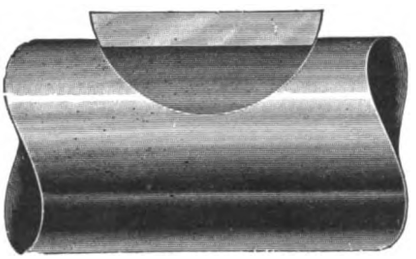
"ADAMS-FARWELL" "ADAMS VEHICLE CO." "AMERICAN MOTOR TRUCK" "AUTO-CAR EQUIPMENT" "BAKER" "BERKSHIRE" "BIDDLE-MURRAY" "CADILLAC" "COLUMBIA" "CHAMPION (McCrea)" "CROWN" "CRAWFORD" "COLUMBUS BUGGY CO." "ELWELL-PARKER" "FORD" "FRANKLIN" "GAETH" "GALE" "GROUT" "HEWITT" "THE HOLMES" "IROQUOIS IRON WORKS" "KNOX" "LAMBERT" "LEAR" "MATHESON" "MACK BROTHERS" "MITCHELL" "MOLINE" "NEW YORK MOTOR TRUCK" "OLDS" "PACKARD" "RAMBLER" "RAPID" "REO" "SIMPLICITY" "STEARNS" "THOMAS" "TOURIST" "WAYNE" "WESTERN MOTOR TRUCK" etc.



Detachable Type Patented









The Woodruff Patent System of Keying has been adopted by the Leading Manufacturers of Motor Cars, Machinery, etc. It is more mechanical, more efficient and also a great labor saving invention.

We carry over 50 sizes of KEYS and CUTTERS in stock for immediate delivery.

THE WHITNEY MFG. CO.,

Hartford, Conn.

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An Example of Faith in Proven Worth

¶ Recently we were explaining the merits of our tires to a prospective buyer, when he interrupted by saying: "That sounds all right, but I don't ask for any better tires than the ones I have already bot from you."

¶ Sustained, proven quality is responsible for the growing faith in

Every tire a *good* tire
We have no special tires for special uses. You can be sure of the quality of the tire *you* buy.

You may never have occasion to use the reserve strength that is put into these tires (we hope you won't) *but it's there if you do.*

MORGAN & WRIGHT TIRES

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect We guarantee our tires only on rims so branded.

CLINCHER——DUNLOP
BAILEY "WON'T SLIP" TREAD

MORGAN & WRIGHT, CHICAGO

NEW YORK SYRACUSE BOSTON PHILADELPHIA CLEVELAND DAYTON DETROIT MINNEAPOLIS ATLANTA ST. LOUIS KANSAS CITY DENVER LOS ANGELES SAN FRANCISCO PORTLAND

NOT A REPAIR—NOT A REPLACEMENT

Do you understand that—NOT A REPAIR

NOT A REPLACEMENT—NOT EVEN AN ADJUSTMENT

So much that is misleading has been written and said about the Glidden Tour that it almost discourages any attempt to tell the actual facts. Nevertheless, we deem it a duty we owe to the public and to ourselves to give you an unvarnished statement of the absolutely unique and superb achievement of

THE TWO CYCLE ELMORE

As Admiral Schley said on a certain celebrated occasion: "There's glory enough for all."

Any car that came through the Glidden Tour deserves unstinted praise and credit.

But the public is entitled to know which particular car made the really **remarkable** showing.

Studying the situation calmly, coldly and critically we don't believe that that is hard to demonstrate.

It is admitted, we suppose, that even among the perfect scores there was not a car that came through without any repairs, replacements or adjustments.

It is admitted—**must** be admitted—that none of these cars came through without frequent or infrequent tinkering. It is a matter of common knowledge that some cars made such wholesale changes as the substitution of entire new axles.

It is admitted that none of the "Perfect" cars were able to take the worst hills without great effort; that few—very few—of them were even able to do so on the low gear. These facts are all matters of history.

Everybody knows them to be true.

Now they are **not true**—not one of them—of the two cycle ELMORE.

It is absolutely true that there was not a single repair or replacement **made** on the ELMORE—not a single repair or replacement—big, little or indifferent, not even the removal of a spark plug.

It is absolutely true that there was not a particle of tinkering on the ELMORE from Buffalo to Bretton Woods.

It is absolutely true that not a single part or part of a part was substituted on the ELMORE.

It is absolutely true that not a single hill was encountered that the ELMORE did not take on the low speed, without effort and with absolute ease.

It is absolutely true that not a single hill was climbed which did not find the ELMORE as fresh at the top as at the bottom.

It is absolutely true that this remarkable showing held good clear from Clyde to Buffalo, Buffalo to Bretton Woods to Boston, New York and back to Clyde—a distance of more than 2,500 miles.

Send for the little book which explains why the ELMORE made such a magnificent showing.

THE ELMORE MFG. COMPANY

1104 Amanda Street, Clyde, O.

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TO SELLERS AND USERS

OF

CLINCHER TIRES

We have commenced and are vigorously prosecuting suits for infringement of our patents against the Pennsylvania Rubber Company and the Michelin Tire American Agency, Inc., on account of the sale of Clincher tires.

The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J Patents:

G & J Tire Co.
Hartford Rubber Works Co.
Morgan & Wright.
B. F. Goodrich Co.
Diamond Rubber Co.
Goodyear Tire & Rubber Co.
Fisk Rubber Co.
International Automobile & Vehicle Tire Co.
Continental Caoutchouc Co.

G & J TIRE CO.

Indianapolis, Ind.

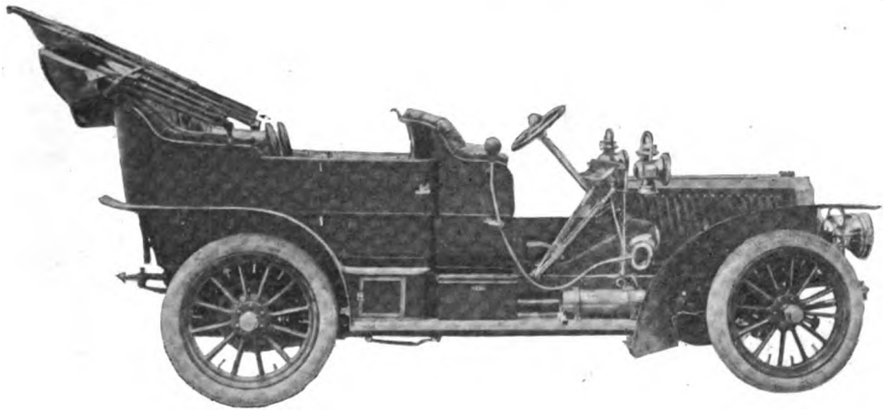
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Matheson Touring Cars

IMMEDIATE DELIVERIES

The value of this high-grade American product depends SOLELY upon its quality and workmanship. The latest practical improvements embodied in its construction gives THE MATHESON a superiority which is widely recognized.

40-45 H. P. $6,000



60-65 H. P. $7,500

LEADING FEATURES

Motor—All valves on top which never need re-grinding. Chrome-nickel steel in transmission gears and shafts.
Ignition—Make-and-Break, with magneto, which eliminates the use of spark plugs and vibrating coils.
Speed—60 miles an hour guaranteed. EVERY CAR IS FULLY EQUIPPED

SEND FOR ILLUSTRATED CATALOGUE

THE MATHESON COMPANY OF NEW YORK, 1619 Broadway, New York

Philadelphia Branch—The Bellevue-Stratford Garage.

LICENSED UNDER SELDEN PATENT

Neither Theory nor "Paper Talk" Ever Produced a

Practical Motor Tire



Single type for channels 2½ to 8 inches in width.



Dual type, duplicating any width of single; for heaviest work ever demanded of a tire.

¶One Power Vehicle owner learned that experimenting with such tires involved eight replacements in three months; prolonged laying-up of his Truck, disappointment of customers owing to non-delivery of goods, etc., etc.

¶He has re-adopted **"Firestone"** Side-Wire Motor Tires because they are the most practical, therefore the most ***economical.***

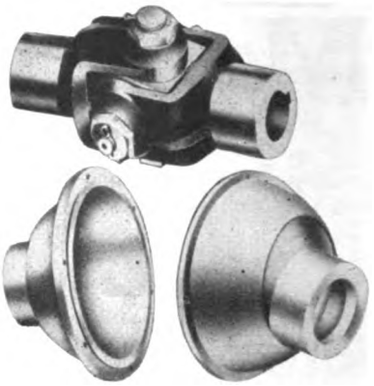
FIRESTONE TIRE & RUBBER CO., Akron, Ohio

BRANCHES

New York, West 58th St. cor. Broadway.
Boston, 9 Park Square.
Philadelphia, 211 N. Broad St.
Chicago, 1442 Michigan Ave.
St. Louis, 2226 Olive Ave.
Detroit, 240 Jefferson Ave.

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HAYNES UNIVERSAL JOINTS.



THE Universal Joints in the Haynes car are different in principle from those in common use. Between two drop forged steel forks with broad, flat inner faces, is fitted a flat-faced square steel block, held in position by pins running both ways through blocks and through forks. The driving friction is exerted entirely on the flat inner faces of the forks and surface of the block, no strain whatever being thrown upon the pins. Both forks and block are case hardened.

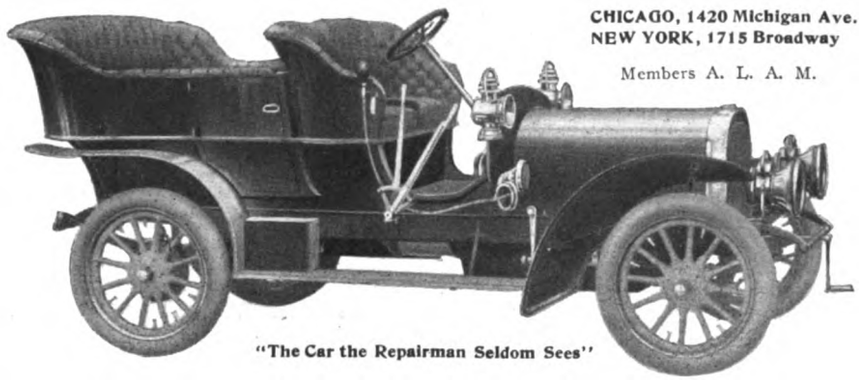
This construction, found exclusively on the Haynes (and is but one of many exclusive Haynes features), gives a much larger wearing surface than can be obtained on pins, thus reducing the wear. The entire joint is encased in an oil tight housing and packed in grease sufficient for hundreds of miles Haynes roller bearing engines, transmission, sprocket and roller pinion, master clutch and every other important feature is exclusive with the Haynes. It is the car of lowest cost for upkeep and repairs.

The Haynes is the highest powered shaft driven car built. In requesting catalogue, for prompt attention address, desk D. 28.

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NEW YORK, 1715 Broadway

Members A. L. A. M.



"The Car the Repairman Seldom Sees"

MODEL "R" FOUR-CYLINDER TOURING CAR.

Vertical roller-bearing engines. Cylinders cast separately, 5⅛x6 inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller bearings throughout. 108-inch wheel base. 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,700 pounds. Price, $3,500, f. o. b. Kokomo. Full equipment.

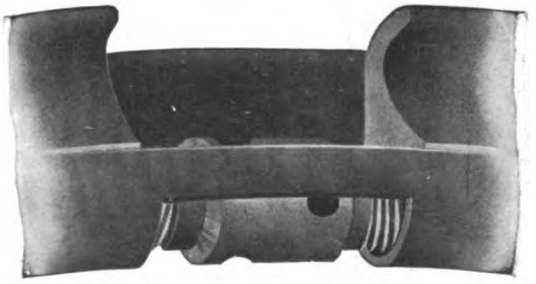
MODEL "O" FOUR-CYLINDER TOURING CAR.

Cylinders cast in pairs 4¼x5 in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,500, f. o. b. Kokomo. Full equipment.

Pioneer Steel Wheel and Universal Rim Manufacturers of the World

Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

Sole Makers of the HARTFORD UNIVERSAL RIM for DUNLOP AND CLINCHER TIRES

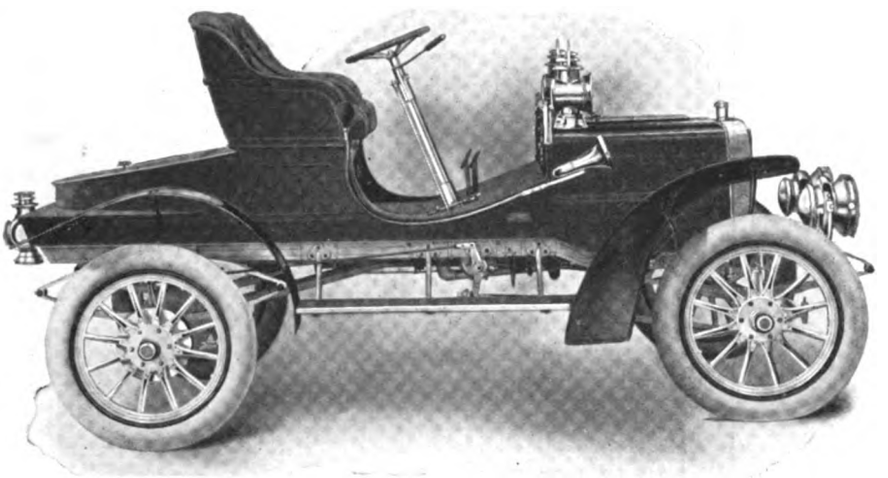


MIDGLEY MANUFACTURING COMPANY, - - Columbus, Ohio.

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NORTHERN

2 CYLINDER RUNABOUT



THE CAR THAT MAKES GOOD

Look at it from any angle you please—first cost, cost of up-keep, reliability, simplicity, appearance, silence, ability—anything you please—the Northern makes good. It has been making good since its inception.

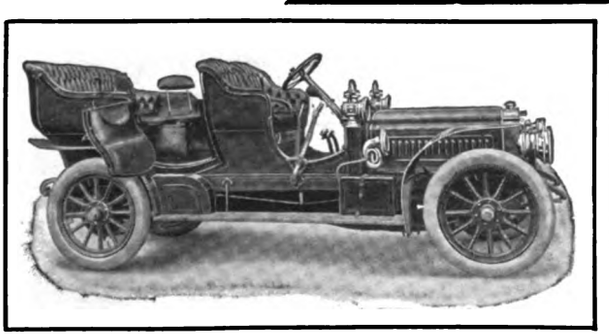
If you are not already familiar with it, the acquaintance may prove profitable.

It is not too early to talk about next season.

NORTHERN MOTOR CAR CO., Detroit, Mich.

Members Association of Licensed Automobile Manufacturers.

PERFECT



Not so much the perfect score in the Glidden Tour; not so much the three perfect scores in the Elgin-Aurora road contest, but the every day perfection of the

Thomas Flyer

in all parts of the country, in all kinds of roads, with all kinds of drivers—that's what has put the Thomas in the fore front of the chosen few really great automobiles of the world.

NEWS SOON ABOUT THE MAGNIFICENT 1907 THOMAS

The E. R. Thomas Motor Co.

1416 Niagara Street, Buffalo, N. Y.

Members Association of Licensed Automobile Manufacturers.

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THE MARMON

"A Mechanical Masterpiece"



Air-Cooling
vs.
Water-Cooling

When a water-cooled car shoots steam from its radiator 15 feet in the air, is the motor cool or hot?

Very few water-cooled cars escaped this trouble, in some degree, in the Glidden Tour.

When the Marmon air-cooled car goes over the same road, climbs the same hills, and does it without stalling, and without overheating, then

Which is the better—water-cooling with its cumbersome plumbing, or Marmon air-cooling?

Emphasize the word "Marmon," and then answer that question!

The Marmon finished the Glidden Tour with a perfect score, without repairs or replacements.

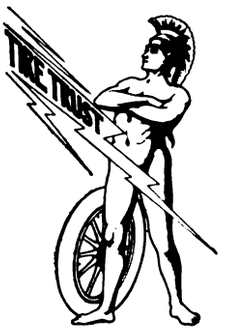
AGENTS who want the best 1907 proposition in their territory should write us now!

Marmon Cars are built entirely and completely by

Nordyke & Marmon Co.

(Established 1851) **Indianapolis, Ind.**

Members American Motor Car Manufacturers' Association.



THE AJAX TIRE

is the only tire that carries an insurance policy

The numbered certificate of

GUARANTEE

that goes with each correspondingly numbered tire, absolutely insures the Automobilist of at least 5,000 miles riding.

Isn't it common sense to believe that tires carrying such a guarantee MUST be the best that can be made?

The manufacturers of such automobiles as The "Maxwell," The "Ford," The "Mitchell," "Moline," and others in the American Motor Car Manufacturers' Association have recognized this fact by equipping their cars with Ajax Tires.

Our guarantee has revolutionized the tire business. Henceforth the public gets a square deal.

Write to-day for a copy of this guarantee and judge for yourself as to whether or not it solves your tire problem.

Address Department A

AJAX STANDARD RUBBER CO.

Factory and General Offices

420-430 East 106th Street, NEW YORK CITY

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SOLARS
SHOW THE WAY

The **Solar Parabolens Projector** will please the motorist who wants to see where he is going.

There is light and plenty of it that pierces the distant obstruction and at the same time lightens up the ground right in front of the car.

Our Bi-Concentric lens is what does the trick.

BADGER BRASS MFG. CO.

11th Ave., 36th to 37th Sts, New York City

KENOSHA, WIS.

THE
Foster Shock-Brake.



is the best and most perfect device yet invented for eliminating shocks to your automobile occasioned by riding over rough places.

It takes away all the jar, prevents breakage and adds to the life of the machine.

Most dealers carry them in stock. All dealers should.

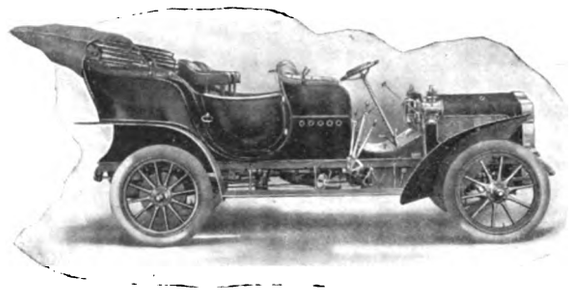
Write for particulars.

Gabriel Horn Manufacturing Co.

981 Hamilton Street

CLEVELAND, OHIO

The Incomparable
WHITE
The Car for Service



MODEL "G" WHITE STEAM CAR

Our Model "G" is a larger, heavier and much more powerful car than any we have previously manufactured. It is conservatively rated at 30 steam horse-power.

The mechanism of the Model "G" exhibits the general features of the well-known White system, with numerous improvements suggested by the study and experience of the year. Because of the much higher speed of which the car is capable, every part has been brought up to a new standard of size and strength. A feed water heater has been added, materially increasing the efficiency of the car; the gasoline tank has been placed in a well protected position at the rear of the frame; 36 inch wheels are used giving even greater clearance than in our Model "F;" both the hand and the foot brakes act direct on the rear wheels; and there is a greater carrying capacity for passengers and for baggage than in any of our previous models.

Above is shown the Model "G" with Pullman body, seating comfortably seven persons.

Write for advance circular giving additional specifications.

WHITE SEWING MACHINE COMPANY

CLEVELAND, OHIO

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An Ounce of Prevention Is Worth a Pound of Cure

To prevent tire troubles equip your motor car with

G & J Oval Raised Tread Tires

and ride in

SAFETY AND COMFORT

We shall be pleased to furnish you some interesting information regarding the strength, durability and good service of these tires.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

G & J TIRE CO.
Indianapolis.

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Locomobile

Wins Endurance Run of the Albany, N. Y., Automobile Club

Joseph B. Taylor, driving his 30-35 H.P. "Locomobile," won the silver cup donated by Col. A. J. McClure. Over 540 miles through New England without a stop or adjustment.

Also W. L. L. Peltz, driving a 30-35 H.P. "Locomobile," secured honorable mention. 19 competing cars. Two of them "Locomobiles."

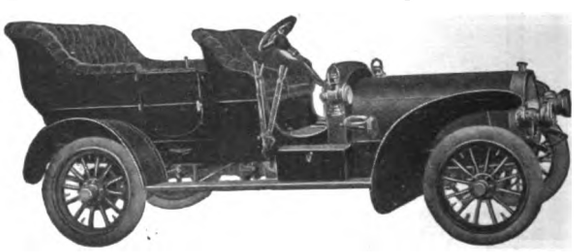
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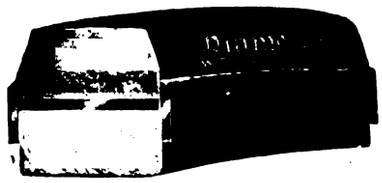
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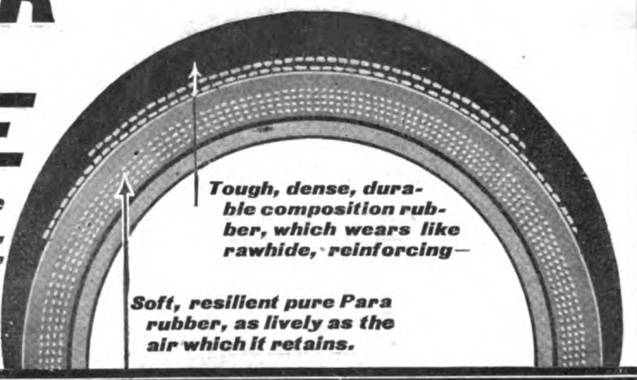
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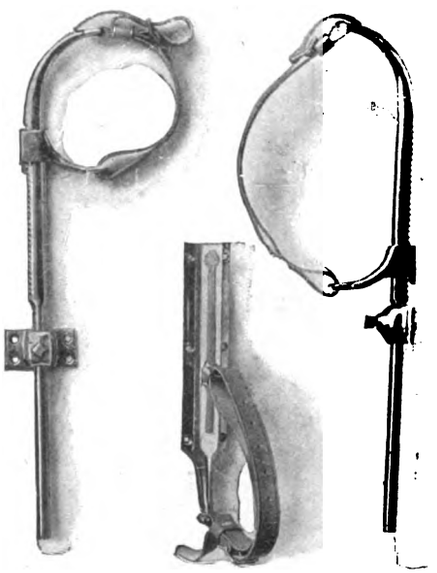
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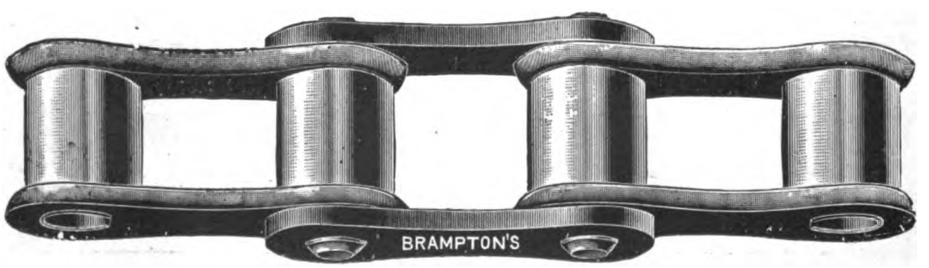
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Properly cut sprockets, and the best and strongest chain in the world.

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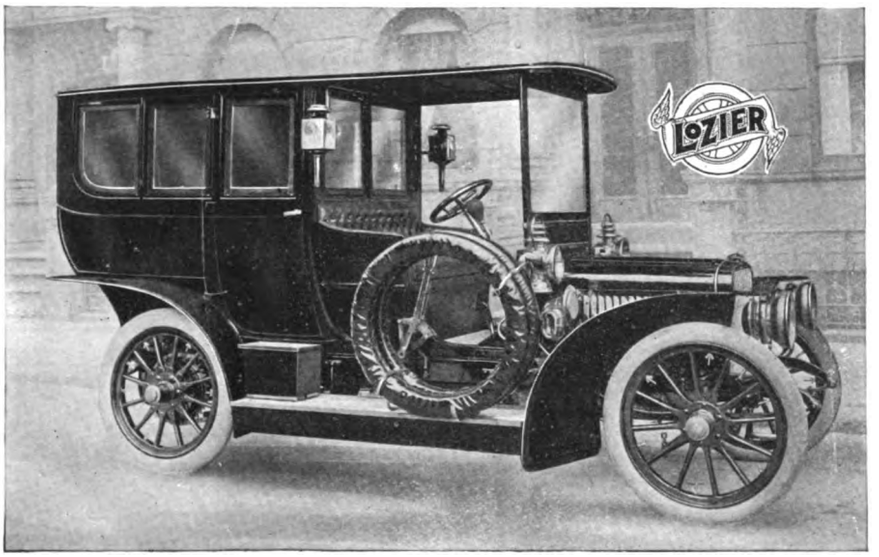
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INDICATIONS



point to an unprecedented demand this Fall for the

LIMOUSINE

type of Motor Car, and the supply is likely to prove inadequate.

Be prudent, therefore, and order now for early Fall delivery. ***Time is precious.***

The new ***LOZIER*** 40 H. P. designs are the same as the new Paris Models, which are booked to appear in December, ***but LOZIER deliveries begin sixty days earlier***—in October.

ORDER NOW AND SECURE PROMPT DELIVERY

THE LOZIER MOTOR COMPANY

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"It's nice to know
How far you go."

—Veeder Odometers.

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Makers of Cyclometers, Odometers, Tachometers, Tachodometers, Counters and Fine Castings.

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POPE Toledo AUTOMOBILES

POPE 19

Pope-Toledo Type XV

Notwithstanding the complete success and supremacy of Pope-Toledos in the past, new principles, new machinery, our long experience and, above all, Chrome Nickel Steel have wrought a complete revolution in our 1907 product.

The new Type 15, which has been running since June 15th, marks an epoch in the history of the industry not only in America, but in the world. Not a bolt, nut, screw or any of the hundreds of parts is like those in any other car we have produced. The engine, transmission, bearings, frame, wheels, axles, brakes, control, design—everything is new and better.

SPECIFICATIONS

MOTOR—50 H. P. four-cylinder vertical water-cooled.
VALVES—All mechanically operated by one cam shaft.
TRANSMISSION—Of the selective type with 4 speeds ahead and reverse.
CLUTCH—Of the metal disc type encased and running in oil.
DIFFERENTIAL and bevel in separate cases forming a part of the jack shaft
WHEELS—36 x 3½ front and 36 x 4 rear.
WHEEL BASE—115-inches.
AXLES—Of one-piece chrome nickel steel I-beam type.
BRAKE—On jack shaft with emergency brakes on the rear wheels of the expanding type.
Entirely new and original body of beautiful lines, distinguished and distinct with double side entrances, large and roomy tonneau seating comfortably 5 adults.

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PRICE, FULLY EQUIPPED $4,250

Pope Motor Car Company

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Members Association of Licensed Automobile Manufacturers.

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07 CARS

POPE Hartford AUTOMOBILES

Pope-Hartford Model L

No arguments in favor of an automobile can equal in forcefulness the results shown by a season's practical demonstration. Never since the beginning of the industry has a car in any class won, within a single season, such pronounced success and deserved popularity as the 1906 Pope-Hartford.

We are persistent and aggressive in matters of improvement and have therefore discovered points of vantage which have helped us to make the new Pope-Hartford Model L the finest car of its kind in the world.

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SPECIFICATIONS

MOTOR—Four-cylinder vertical water-cooled, all gears encased; valves all mechanically operated and interchangeable; 25-30 H. P.
IGNITION—Jump spark, coils and batteries consisting of one set of dry and one storage battery with provision made for magneto.
LUBRICATION—By a special oiler located under the hood driven by a belt from the cam shaft, with sight feeds on the dash.
TRANSMISSION—Sliding gear type with 3 speeds ahead and reverse.
CRABURETOR—Of special design, our own manufacture, very flexible and efficient. Throttle control by lever located on top of steering wheel.
BRAKES—Two sets operated by foot pedals and side lever.
DRIVE—Through a propeller shaft pinion and bevel gear to the rear axle.
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REAR AXLE—Of solid steel running on large ball bearings in tubular sleeve.
FRAME—Armored, similar to our Model F frame.
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WHEELS—32x4 front and rear, running on large ball bearings.
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EQUIPMENT—Full set of lamps, horn, tools and floor mats.

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Pope Manufacturing Company

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Columbia

AUTOMOBILES

Are completely illustrated and described in THREE CATALOGUES devoted respectively to GASOLINE CARS (18 H. P., 24-28 H. P., 40-45 H. P.,) ELECTRIC CARRIAGES (Runabouts, Victoria-Phaetons, Surreys, Broughams, Hansoms, Landaulets, Busses) and ELECTRIC COMMERCIAL VEHICLES (delivery wagons and trucks, ranging in load capacity from 1,000 to 10,000 pounds).

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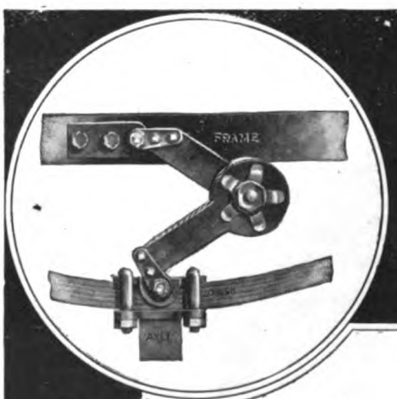
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Because motorists appreciate the unquestionable merits of the pioneer product and insist that their cars be equipped with **"The Device of International Fame."**

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Prevents Lost Traction, Saving Running Power.
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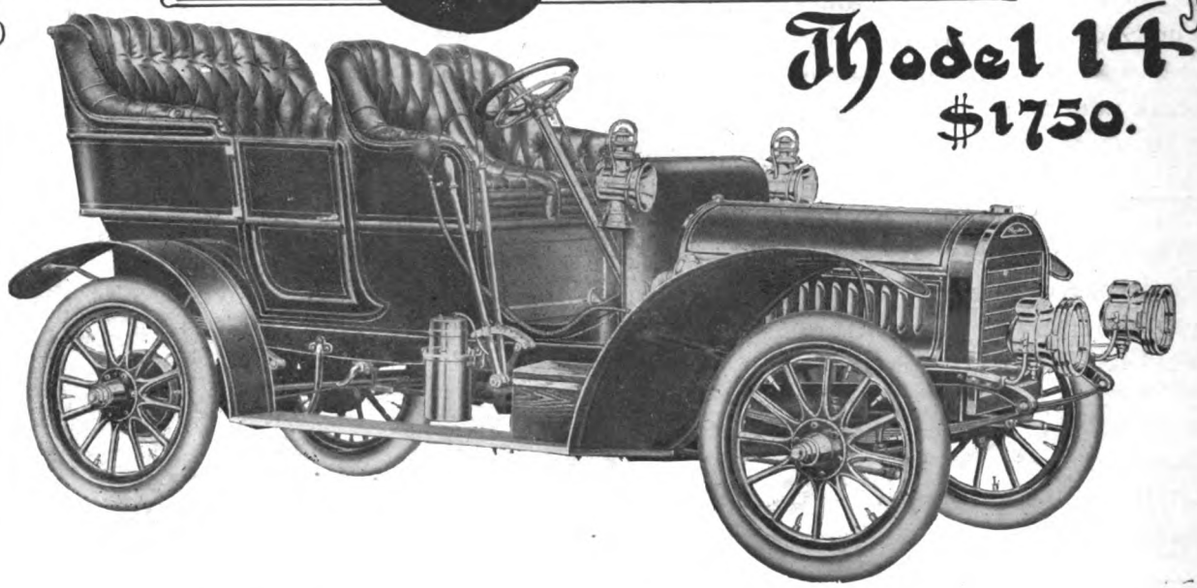
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The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, August 23, 1906. No. 12

RECEIVER FOR STEEL BALL CO.

Involved in Chicago's Bank Failure—To Reorganize on Larger Scale.

One of the immediate results of the disastrous failure of the Milwaukee Avenue State Bank in Chicago, last week, so far as the automobile trade is concerned, is the placing of the Steel Ball Co., of that city, in the hands of a receiver. Judge Bethea, sitting in the United States District Court, appointed W. F. Ziabel to take charge of the property in this capacity. According to the statement of the Bank Examiner who has been at work on the books ever since the bank closed, the indebtedness of the Steel Ball Company to the institution is in the neighborhood of $180,000.

Notwithstanding this, the business will be continued without interruption and no delays will be experienced in complying with the delivery dates of the many contracts the company has in hand for the Hill Precision Oiler and its other specialties. Plans for an immediate reorganization on a much larger scale are already under way and will be made public in the near future.

The Milwaukee Avenue State Bank's defaulting president, Stensland, who used the assets of the latter institution in such an unprecedented manner and whose whereabouts is still a matter of anxiety to police authorities all over the country, was a large shareholder in the company, having taken an active part in its financial affairs during the past two or three years. It is to straighten out the tangle attendant upon the bank crash that the appointment of a receiver has been found necessary.

Acme to Reorganize.

The affairs of the Acme Motor Car Co., of Reading, Pa., which went into the hands of a receiver early in July, are now in a fair way to be straightened out and the company reorganized, the appraisers appointed by the court, having filed their statement of assets late last week.

The report shows a total appraisement of $228,845.50, which is divided as follows: Real estate, $126,000.00; materials, $44,167.49; finished cars in storage, $7,999.00; finished cars in factory, $9,230.00; hand tools, $6,212.94; hand tools in Philadelphia branch, $77.00; machinery, $20,363.30; equipments, $2,221.46; supplies, $192.93; basement, scrap, oils, etc., $191.23; fuel, $228.00; patterns, blue prints and tracings, $800.00; office furniture and fixtures, $345.80; book accounts, receivable, $6,262.09; insurance surrender value, $1,250.00, and cash, $4,303.26.

The account of liabilities is not yet available. As stated in the Motor World at the time, the petition was taken on the initiative of Frank A. Devlin, who was generally credited with being the company's financial backer.

Blomstrom Motor Co. Enjoined.

Some time ago an application was made at Lansing, Mich., by the attorney general of Michigan to have the privilege of the C. H. Blomstrom Motor Co., to do business in that State taken away from it, on the ground that it was not properly incorporated. This action was taken at the instance of Carl H. Blomstrom and the circuit court of Wayne county issued an injunction.

Nathan M. Kaufman and Samuel R. Kaufman, two of the incorporators, filed last week in the circuit court, a petition asking that the injunction be modified, so that the company may hold a meeting and remedy the defects in the incorporation. The Kaufmans state in their petition that the present indebtedness of the company, which was organized in 1904, is $300,000, and that on Feb. 19, 1906, at a meeting of the stockholders, the capital stock was increased by $100,000, of which amount $75,000 was to be paid for real estate in Detroit.

The petitioners further state that the reason for asking for an injunction was because Samuel R. Kaufman, the secretary and treasurer of the concern, resided at Marquette and therefore was not eligible to the secretaryship. They claim that they should be allowed to call a meeting of the stockholders in order to make the necessary changes and borrow $150,000 to tide over the company.

NO CHANGE IN SHOW DATE

Garden to be Occupied Jan. 12-19 as Usual—No Room for Jobbers.

Formal announcement of the dates for the holding of what has popularly come to be known as the "Licensed" show at Madison Square Garden next year, was made this week. As was to be expected, no change has been made and the show will as usual take place during the middle of January, or from the 12th to the 19th, to be more explicit, although rumors were current about two months ago to the effect that the Association of Licensed Automobile Manufacturers was considering the possibility of advancing their show dates. Weight was lent to this by the fact that the association's lease of the Garden gives it an option of two dates, falling either in December or January, and as rumor had it that it was intended to hold the exhibition in the former month there appeared to be some foundation for the story. It was denied, however, by the officers of the association, who took the trouble to explain that the optional date in question limited them to the week just preceding Christmas, which was such an unfavorable time as not to be considered at all.

In the words of the announcement, "The 1907 National Automobile Show in Madison Square Garden will differ radically in its beauty of form and color from all predecessors. It will have more automobiles, more exhibitors, a greater floor space, and many other new features." Just what the former attraction will consist of is not set forth in detail, but from a later statement in the announcement it is made plain that the "beauty of form and color" is now being gathered abroad by the association's decorators who have been sent to the other side especially for this purpose, and judging from the success of last January's show in this respect, it is evident that no pains are being spared to make next year's event one that will surpass all previous attempts of the kind.

In view of what was accomplished in the way of transforming the Garden into a fit

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setting for the automobile at the last show, it is unlikely that the exhibitors will give themselves any concern on this score for next year. What they are chiefly interested in is space and by a change from the plan usually followed the amount available has been increased by about 8,000 square feet. The main floor will, as always, be devoted to showing pleasure cars and the lighter models will occupy an elevated position on the first balcony that hitherto has been given over to the accessory manufacturers exclusively. Electric pleasure vehicles will be shown in the Exhibition Hall on the Madison avenue front and commercial vehicles of all kinds will be in the basement.

Between the balcony and the gallery which is always devoted to small exhibits of accessories, there will be erected a mezzanine platform which will provide the additional space mentioned and which will be devoted to accessories. The concert hall will also be devoted to the exhibits of this branch of the industry. In all probability the exhibitors will be confined to the members of the Association of Licensed Automobile Manufacturers, where makers of cars are concerned, and to the members of the Motor and Accessory Manufacturers' association in the later field so that the jobber and other exhibitors will be cut off altogether.

In the Retail World.

Henry P. Jones, who has been conducting a livery stable at 346 Belleville avenue, Newark, N. J., will open a garage at 31 Waeman avenue, that city.

Holcombe & Co., New Haven, Conn., are building an addition to their Goeffe street garage. It will be 50x64 feet, covered with corrugated iron and one story in height.

Jesse D. Pierson, until now in the livery business in Chester, Pa., has started the demolition of his building at the corner of Washington and Olive streets. He will build and conduct a garage on the old site.

Fred Miller, of Rockford, Ill., has sold his South Water street garage and business to Edward Troller, who has been associated with him for several years. Sickness in Miller's family necessitated a removal to Kansas.

The Norcross-Cameron Co., Springfield, Mass., has moved into its new building at 55-57 Bridge street. The garage is of brick construction, two stories high, and measures 50x100 feet.

The Flatrock Automobile Co. has been incorporated in the Indiana town of that name and will erect a brick garage costing about $3,000. M. M. Nading is president of the new company, H. M. Wright, vice-president, and B. D. Wright, secretary-treasurer.

The Barnett-Jackson Co., New York agents for the Chadwick and Doris cars, has opened a salesroom and garage at 236 West Fifty-fourth street. The location is ideal, being near Broadway and almost opposite the new home of the Automobile Club of America.

A garage is to be built at Columbia, Tenn., which will give an impetus to an already thriving automobile business in that locality. A. L. Blocker is at the head of the enterprise and intends to start an automobile stage line between Columbia and Mt. Pleasant, Tenn.

Atlanta, Ga.—Its people like to have it called Cosmopolitan Atlanta—is to have a large garage, if the plans of Asa G. Candler, James Nunnally and Ernest Woodruff do not fall through. The proposed site for the building is where the skating rink now stands, which will give the garage the central location desired.

R. H. Hovey and Homer Boushey, of San Francisco, who some time ago incorporated the Hovey-Boushey Company to look after the Pope interests in that city, are building a large garage at 407-409 Golden Gate avenue, which will soon be ready for occupancy. The building will have two entrances, one on the avenue and the other on Larkin street. Other members of the company are Hon. C. H. Gaurotte, H. K. Gregory and C. L. Hovey.

The Ettwein Motor Co., which was incorporated a few weeks ago, opened its handsome new garage at Thirty-seventh and Main streets, Kansas City, Mo., last week. The garage is colonial in outward design and inside the ceiling is crossed by huge oak beams, the woodwork being in antique oak. In addition to a spacious storeroom, workshop and office, the building contains a handsomely appointed ladies' room with all the conveniences of a boudoir, and a room for chauffeurs.

Three creditors of the Motor Vehicle Co., of Buffalo, N. Y., have filed a petition asking to have the company declared bankrupt. The main petitioner is George W. Werner, with a claim for $843.40 for rent of the building at 1133 Main street. The petitioners allege that the garage company company committed an act of bankruptcy on July 20, while insolvent, by permitting the Stearns Electric Equipment Company to obtain a judgment for $65.70. On Aug. 9 a sale of the company's assets in execution of the judgment was advertised to be held by the sheriff. A further act of bankruptcy is alleged in permitting Samuel W. Rushmore to obtain a judgment for $65.70 on Aug. 9.

Mason to Enlarge.

The Mason Motor Co., of Des Moines, Iowa, is making plans for the erection of a large factory building in the fall, the present plant at East Fifth and Vine streets, having proved inadequate for its growing business. The new factory will be two or three stories in height, of brick construction, and its dimensions will be 100x150 feet. It will be equipped with every modern convenience as well as every facility for rapid work.

The Week's Incorporations.

Flatrock, Ind.—Flatrock Automobile Co., under Indiana laws, with $2,500 capital; to conduct garage. Corporators—M. M. Nading, H. M. Wright and B. D. Wright.

Bath, Maine.—Bath Automobile and Gas Machine Co., under Maine laws, with $10,000 capital. Corporators—E. W. Hyde, president; S. R. Frye, treasurer, both of Bath.

Walla Walla, Wash.—Moore Automobile Co., under Washington laws, with $25,000 capital. Corporators—Gilbert Hunt, D. Hunt, John D. Moore and Melancthon Walters.

Dayton, Ohio.—Dayton Automobile Co., under Ohio laws, with $25,000 capital. Corporators—John L. Baker, Edward E. Burkhardt, H. A. Tressler, A. M. Dodds and John Van Deman.

San Francisco, Cal.—Boyer Motor Car Co., under California laws, with $50,000 capital, $20,000 paid up; to do general automobile business. Corporators—G. A. Boyer, F. M. Boyer and Laurence T. Wagner.

New York City, N. Y.—Washington Heights Garage, under New York laws, with $10,000 capital; to conduct garage. Corporators—Norman L. Ormsby, Joseph A. Adler and Thomas J. Meehan, all of New York City.

Brooklyn, N. Y.—Keystone Automobile and Garage Co., under New York laws, with $20,000 capital; to manufacture and sell automobiles and machinery. Corporators—H. M. Norwood, H. E. Gates and W. W. Lansing, all of Brooklyn.

Grand Rapids, Mich.—Annable Pneumatic Spring Co., under Michigan laws, with $75,000 capital; to make pneumatic springs for automobiles. Corporators—W. W. Annable, Strathearn Hendrie, Berthune Duffield and B. W. Davis.

To Make Pneumatic Springs.

With a capitalization of $75,000, the Annable Pneumatic Spring Co., has been formed at Grand Rapids, Mich., to make and handle a pneumatic spring for automobiles invented by W. W. Annable. The device, upon which patents are pending, was owned by the Annable-Fitzgerald Co., of Grand Rapids, but the new company takes over sole rights. The company consists largely of Detroit capitalists and the headquarters of the company will be in that city. The officers of the new company are: President, Srathearn Hendrie; vice-president, W. W. Annable; secretary-treasurer, Berthune Duffield.

Another Reo Dividend.

For the third time this year the Reo Motor Car Co., of Lansing, Mich., has declared a dividend of 10 per cent., the last being payable on August 15th. The company has retired $100,000 worth of preferred stock and is regarded as one of the most profitable manufacturing institutions in Michigan.

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TIRES HAVE KEPT PACE

Improvement in Cars and Tires has Been Coincident, Says a Maker.

"No one can but be impressed with the enormous proportions which the motor industry has assumed, and the number of cars delivered this season supports the prediction that the automobile will represent one of America's first industries, if, indeed, it may not now be so classed," H. O. Smith, president of the G & J Tire Co., said recently.

"The American seems to have gained, and as in other lines, entirely overcome the handicap of foreign countries and in many branches of the industry is forging ahead, finding new uses to which the motor car is adapted, and preparing to meet such requirements. This season has shown ample market for all the standard cars the makers have been able to produce.

"The Americans, showing the ever progressing spirit, have gone beyond the limits of pleasure and luxury vehicles, and have made the motor car an agency for service and economy. America does not afford the same conditions as the Continent. This country being new and covering a vast area, we could not expect the ideal roads of Europe, and the American manufacturers have not been slow in realizing these conditions and setting about to meet and overcome the difficulties, and results have proven their efforts have not been without fruit.

"The average American car will prove all this, with abundance of power for either speed or hill climbing, every part well designed and of ample proportions, and a noticeable absence of superfluous and trappy parts. The result is a car of reasonable weight for horsepower, with every ounce of metal placed where it counts for most.

"It has been said that the major expense in connection with a well made motor car is the tire expense, and especially is this true in America with inferior roads, since the tire is the agency most depended upon to overcome the irregularities in the road surface and relieve the mechanism from the intense shocks and vibrations caused by the unfavorable road conditions.

"Americans have not developed and improved the motor car alone; the necessary development of the tire has not been overlooked. The tire is required not only to carry the car and its load, but to resist the shocks and blows which can be reckoned only by considering the weight in connection with the speed attained, to get an idea of the punishment to which the tires are subjected.

"In modern motor car construction we have increased the horsepower and speed, as well as reliability, consequently why should the tire which might have been considered satisfactory in the old days with less power and speed and less reliability which limited the service to be gotten out of the car, be expected to pass muster to-day—it could not.

"Any one posted can find ample evidence of the progress which has been made in the tire making world by familiarizing himself with a number of the most successful American tires which have been placed on the market during the season of 1906.

Organize a Reo Sales Company.

Under the title of the R. M. Owen Co., Ray M. Owen and Paul J. Rainey have organized a corporation to handle the entire product of the Reo Motor Car Co., of Lansing, Mich. The chief incorporators of the new company have hitherto handled the Reo cars in New York territory, as the Reo Motor Car Co. of New York, aside from the fact that R. M. Owen is general sales manager of the parent company. They will now control the sales for the entire United States as well as for export, so that the change represents expansion on the part of the same interests that have always been identified with the Reo, instead of the radical departure that the altered name might be taken to indicate. The matter has been kept quiet thus far so that no details of the incorporation are forthcoming.

Warning to Tire Dealers.

Owing to the unsettled state of the tire market now prevailing, a prominent tire manufacturer has issued a circular letter to all agents suggesting that they limit their stocks to present needs for the time being as fluctuations of price may occur at any moment, a new and much lower schedule probably catching the agent with a large stock bought at much higher figures, unless this bit of timely advice be heeded. Its weight is vastly increased by a statement to the effect that should a drop in prices occur, no rebates will be allowed on stock bought at present prices.

Morrison Gets the Olds.

A. E. Morrison, formerly of the Morrison-Tyler Co., has secured the Boston agency for the Oldsmobile line, which has been transferred from the Adams-Fulton Co. It is reported that Mr. Morrison is angling for another well-known car, if he has not already secured it.

Walden Goes Abroad.

S. D. Walden, sales manager of the Packard Motor Car Co., sailed last week for a well-earned vacation tour in Europe, the trip being in the nature of a present from the company in recognition of his services.

William E. Metzger, sales manager of the Cadillac Motor Car Co., sails for Europe this week. The trip is purely a business one and may keep him abroad some time.

The H. H. Franklin Mfg. Co. are to open a Boston branch, the manager of which, however, has not yet been selected.

Pope Advances Price $250.

Those wiseacres who have been predicting a drop in the prices of cars, first, last and all the time, found small substantiation of their prophecies in the general upward trend that was manifest last year; and another setback is to be found in the announcement of the Pope Mrg. Co. to the effect that the 1907 model Pope-Hartford will list at $2,750 instead of $2,500. The additional $250 represents greater value in the shape of improvements and the very best materials for the purpose obtainable. The advance is only one of a number that are indicative of the general desire on the part of manufacturers to turn out the very best car that can be built and they have found in numerous instances that their original limit was too close to permit of this being done.

Sackett Goes with Moon.

L. J. Sackett, formerly with the Peerless Motor Car Co., has accepted the position of sales manager of the Moon Motor Car Co., of St. Louis, Mo., and has already entered upon his new duties.

When, a short time ago, it was announced that Louis P. Mooers had been engaged as chief engineer by the Moon Company, it was regarded as a foregone conclusion that Sackett would shortly join him as the relations between the two have always been very close. Mr. Sackett is one of the most widely known automobile salesmen in the trade and it will be strange indeed if his influence is not felt in the rising of the new Moon.

Duerr Takes the Apperson.

The Metropolitan Automobile Co., at Seventy-seventh street and Broadway—otherwise C. A. Duerr & Co.—has just taken over the agency for the Apperson cars, built by the Apperson Bros. Automobile Co., of Kokomo, Ind. The Apperson has hitherto been handled through a branch house located on West Forty-third street, near Sixth avenue, and has become well known in New York.

Foss-Hughes to Open in Providence.

It is reported that the Foss-Hughes Co., of Philadelphia, will shortly open a Providence, R. I., branch with "Archie" Hughes as manager. Pierce Great Arrow cars will, of course, be handled, and it would not be surprising if the Cadillac would be beside them.

Looking for Foreign Agency.

G. A. Boyer, of the Boyer Motor Car Co., of San Francisco, is in the East, one of the objects of his trip being to take on a high-class foreign car, there being even in 'Frisco a class of trade to whom the foreign tag and prices appeal. Mr. Boyer, in common with the other coast agents, reports business brisk despite the calamity which befell the Golden Gate city.

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Much has been written and printed concerning the care and use of tires for automobiles and much misinformation has been circulated.

"The Pneus"—is an illustrated publication that has "made good" as an authority on tires, and will provide you with a variety of reading matter about them and allied subjects.

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Truth speak and
Unreservedly endorse it with enthusiasm, thereby
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Yankees at Chicopee Falls and take an outing to
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NEW YORK, AUGUST 23, 1906

The New Cup Course.

While an increase of more than fifty per cent. in the number of turns that will have to be negotiated by the contestants at a high speed mark the new course selected for the running of the Vanderbilt race this year, it is, in the opinion of those responsible for its selection, far safer than that of last year. There were features of last year's course that caused many a grave headshake and which, it was freely predicted, would be responsible for at least one or two fatalities. That they were not, is a matter of history, but it has been the aim of the chairman of the A. A. A. racing committee to eliminate them as far as it was possible to do so.

With this end in view the back stretch has been changed so as to avoid the nerve-racking Albertson "S" with its forest of telegraph poles, as well as the Albertson grade crossing just beyond it. And the treacherous turn in the Guinea Woods just before reaching the above mentioned point has also received attention and no longer forms part of the course. Changed conditions that have come about in the character of some of the island roads since last year's race have made further deviations necessary. Chief among these was the laying of trolley tracks on the Jericho Turnpike from queens to Mineola.

As the result of these changes, the course now has eleven turns instead of seven, but against the increase in curves may be cited the reduction of grade crossings to one as well as the elimination of a number of spots that caused the spectators to gasp every time a car struck them in last year's event. Moving the backstretch of the course northward has also added a number of grades which will make the race a better test of the mettle of the cars.

Whether in subtracting two and adding six the race committee of the A. A. A. has not made the problem even more difficult for the competitors seems questionable to some who are familiar with both courses. Better one or two bad turns than half a dozen that are not quite as dangerous for even the most reckless driver will slow down at a reputedly dangerous place, but cannot be doing the same thing continuously or his chances of winning will vanish. And even an "S" turn is not so bad as one of the "hairpin" variety for what is more dangerous than trying to make a car practically double back on its course when going at high speed? That there would have been complaint in some quarters regardless of what action had been taken is a matter that calls for no comment; it is impossible to satisfy everyone. In the opinion of some of the drivers though, the acute angle that forms the "hairpin" where the Old Westbury Road strikes the Old House Road, is far more dangerous than the Albertson "S" which it eliminates, ever could be.

A Record-Breaking Run.

When the permanent way with its then puny iron rails, first stretched across the continent from coast to coast the achievement was hailed as the greatest step ever made in the material progress of a great nation. With its completion the prairie schooner and the pony express became memories of a bygone day. It took twelve or more days then to reach the Pacific by rail and every improvement in roadbed and rolling stock that brought about a reduction in the time required was considered an epoch making feat. Then public interest in such things lapsed and for a number of years the man in the street forgot there was such a thing as transcontinental railroads, except when he wanted to use them.

The day of the bicycle followed next and first single riders and then relays, demonstrated that in case of necessity communication was not absolutely dependent upon the railroad and that something like a reasonable running time could be made even with human power. This was followed by a further lapse of interest until, three years ago, the automobile entered the arena. At first, its performances in this field were not greatly superior to those of the two wheeled machine, but successive trials have cut days at a time off the record, finally culminating in Whitman's marvellous dash that required but eighteen days all told.

Although none of the previous attempts on the record were carried out with such attention to detailed preparations of a nature insuring success, still nothing demonstrates so strikingly the phenomenal development of the automobile as his reduction of the performance of three years ago by more than two thirds. It is indeed a far cry from the 64-day trip of Dr. Jackson in 1903 to the 18 day dash of Whitman, which would have been even better and had it not been for an unfortunate mishap. Even as compared with his own previous record of 33 days, Whitman's performance is wonderful and speaks volumes for the reliable running of his car. In fact, the performance was far more that of the car than the driver, of which there were four.

It's an Ill Wind—!

One at least of the crimes—if such it can be called, that can be laid at the door of the automobile, with some show of reason, and which its critics and accusers of wicked things galore, have been last to find out, is the fact that its comparatively sudden and exceedingly widespread adoption has been responsible for an advance in the price of some commodities. Gasolene, of course, is the first of these to suggest itself to the mind of the average layman, but according to authorities who are in a position to know, the automobile is responsible for but a comparatively small part of the total annual consumption of the powerful fluid and the returns of the National Board of Underwriters show that there are more than a million users of gasolene for power, light

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or cooking, in no way connected with the motor vehicle.

Next in order come rubber and leather. And it is not at all difficult to comprehend why the advent of the automobile should have had an effect on the former industry. Previous to the manufacture of the pneumatic tire for automobiles, there was probably no one article made of this material that consumed so much of it, nor that required it to be of such good quality throughout. It would require quite a small stock of rubber boots, overshoes and rubber coats to consume as much good rubber as enters into the making of a single automobile tire of the now prevailing large sizes. And on top of this is the fact that the automobile tire wears out faster than almost anything else made of rubber.

Leather is the latest material to be added to this category and here again it may be said that there is scarcely another single article of manufacture for which so much upholstery leather of a fine grade is necessary to its completion. Not since the days of the Civil War, when the paper money inflation sent the price of hides for this purpose, to 14½ cents, have prices soared to the extent for which the automobile is said, in a large measure, to be responsible. The war-time figure is credited with constituting a record during all the years since then down to the present, but now the automobile has jumped it to 17¼ cents. But it's an ill wind that blows nobody good.

Value of the Speedometer.

Before the days of police activity in checking the speeding of automobiles, which has been facetiously crystalized by Punch in the term "coppermine," the motorist was, as a rule, quite content to get what speed he could out of his car, and to trust to his somewhat fertile imagination to supply the details of speed and distance in the subsequent narration of his exploits. But the days of such vagaries are passed, and it has come about that the present user is virtually compelled to know within narrow limits how fast he is going, and what relation that speed bears to the capacity of the machine in one way or another.

In this way the speed measuring instrument has become, if not an essential, at least one of the most desirable of the many appointments which are counted among the legitimate accessories of the car. And, indeed, it is a credit to the branch of the industry which has been responsible for its development, that so many different principals have been adapted to the use of such devices, and that such a large number of well designed and well built indicators are now on the market.

With regard to its utility, popular impression probably ascribes it chiefly to its value as an aid to the motorist in keeping within the limits of speed prescribed by law. Whether that be so or not, its reputation doubtless has much to do with its importance, and in this connection it may be noted that beyond a doubt, the artifice of one maker in tagging conspicuously all cars equipped with his device has served to prevent many a rash and groundless arrest. And all this helps, not simply in cautioning the police against useless persecution, but also in calling the attention of the motorist himself to the rate at which he is going, thus placing upon him the responsibility when he exceeds the limit, which is set by the common law of decency to his fellow men, and as a guide to which the statutes of State and town should, in theory, prove effective. This all speed measuring instruments do, and their influence both upon their users and the police, is most salutatory.

But it is not in its ability to enable the user to skimp the letter of the law, that the best usefulness of the instrument is developed. Rather, it serves to better advantage in teaching him in terms of that wholly comprehensible unit, the mile per hour, what are the capabilities of his car; in teaching him what speed really is, how it feels, and proving conclusively that the mere fact of a noise in the muffler, a rattle in the gear, and a pitching motion not unlike that of a small boat in the wake of a double-ended ferry, may not mean 50 miles per hour, but only an overworked car and a rough road.

In this, and in teaching him what to expect and what not to expect in covering a certain piece or road, with one, two or seven passengers, lies the true value of the speed measuring instrument. For it enables him to learn to know his car better than he could come to know it in any other way. And with such knowledge constantly increasing, and the lay motorist, the more exacting because of his non-technicality, coming more and more to understand what is involved in mechanical traction, and how it is accomplished, is it any wonder that makers and dealers are less pestered with foolish complaints than formerly, or that a good car is taken nowadays, almost as a matter of course?

Maker or Driver?

What percentage of importance attaches to the labors of the maker and the driver of a car, how they compare in their bearing upon its performance, is a ratio which never yet has been determined, even to a passing close approximation. Certain it is that when that performance comprehends the supreme importance accruing to the competitor in a great race, each must understand the foibles of the other, allowing for them in his share of the work. Thus both are in a sense co-workers to an end. And when that end has been achieved, both receive their measure of the credit according to the manner in which they have acquitted themselves, each in his own specialty.

Aside from its phase of national interest to the motoring public, it is pretty evident that the Vanderbilt Elimination will amount in a secondary way to a contest for supremacy between the stock car and the racing machine. There will be worthy exponents of both types, the former, to be sure, in a small minority and handicapped as to power. Yet, on the other hand, the racing car generally is like the high bred horse, high strung. Its endurance then, being largely a matter of question, the machines which are built especially for endurance, will have an advantage all their own. Certainly, in the average speed, they should be able to come close to the mark set by the more powerful cars.

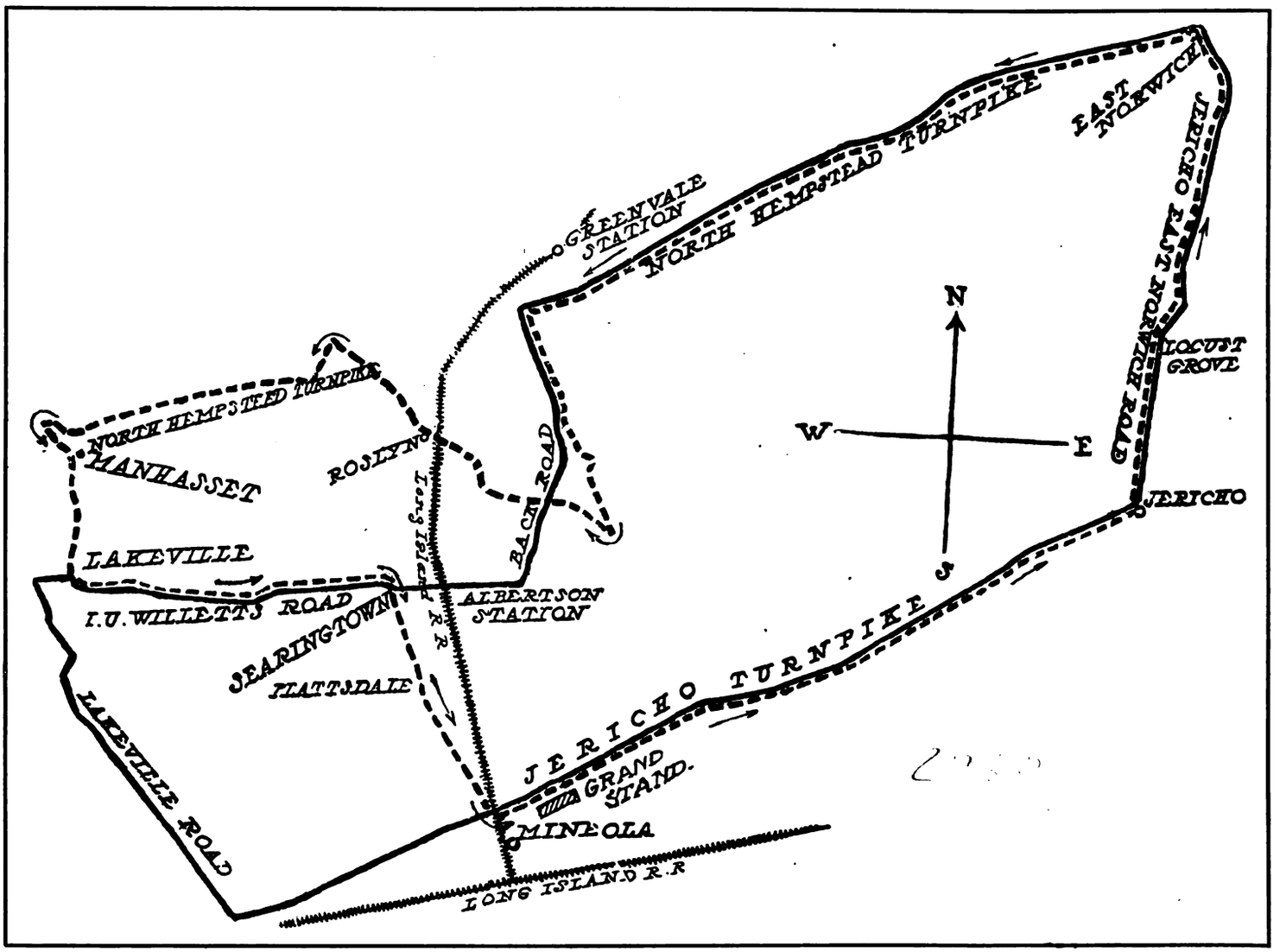
With 1907 models appearing now at the rate of one or two a week, and not alone in the maker's announcements, but in the hands of purchasers on the road, that part of the public that still considers the year mark as representative of considerable change is beginning to wonder what there will be in the shape of novelty to show when next winter comes around. In other words, if all the secrets are to be scattered broadcast now these so-called 19 7 models will be an old story long before that time. Will the 1908 model be ready for exhibition then?

According to an ambitious publisher, 13,400 copies of his periodical were sold on the course during the Vanderbilt race last Fall. Although illusions are not rare and ambition is laudable, if anyone saw even 3,400 copies of any publication in evidence on that occasion there surely must be scientists or spy-glass manufacturers willing to bid high for an option on his optics.

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FOR THIS YEAR'S VANDERBILT

Turns cut out and more turns added as well as grades. New course is safer and faster says Chairman Thompson: Slower and more dangerous think some of the drivers.



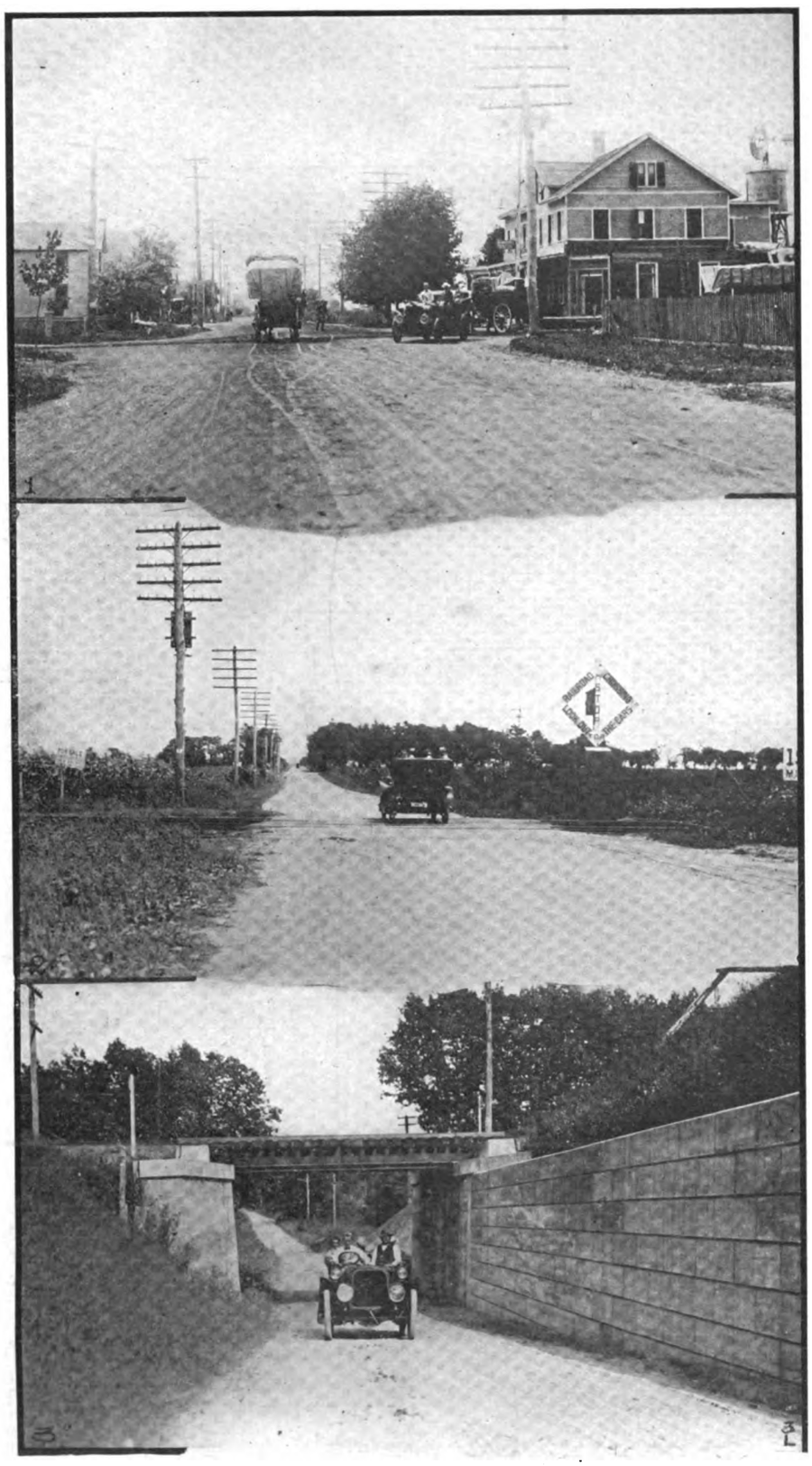
THE NEW COURSE IS INDICATED BY THE DOTTED LINE

On condition that the roads be immediately oiled and that flagmen be stationed at all crossings and turns, as was done last year, the Nassau County Board of Supervisors granted permission on Monday last for the use of the new course for this year's Vanderbilt Race, selected by the Racing Committee of the A. A. A. between the hours of 5 a. m. and 3 p. m. on September 22 and October 6, the former date being that of the elimination trials to decide which five of the fifteen American entrants is to represent this country in the race itself.

It was generally anticipated that practically the same course as was run over last year would be retained and this has been the case. The changes made, for which Jefferson de Mont Thompson, chairman of the racing board, is said to be chiefly responsible, have been with a view to eliminating the obvious defects of last year's course as well as to provide for the changed conditions found on some of the roads. The start and finish have accordingly been moved eastward about half a mile to the intersection of Mineola Avenue with the Jericho Turnpike, better known to the majority of motorists as the location of Krug's Hotel. And it is probable that the grand stand will be located just a little further east and on the south side of the road. If the site can be obtained for it, a repair station for each one of the entrants will be established directly opposite the grand stand, only the driver and his mechanic being permitted to make repairs there, although the usual relief stations will be allowed on other parts of the course.

As has been the case in each of the previous races the Jericho Turnpike forms the speeding stretch of the course, and from the start this broad and rolling highway is followed to Jericho, then making a turn to the left on the Jericho and Oyster Bay road, which is followed until East Norwich is reached where a second turn to the left is made into the North Hempstead Turnpike, which represents the best part of the backstretch. At Bull's Head there is another sharp turn to the left and in the next few miles there are four bends all trending to the left or eastward and culminating in a

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1. BLIND TURN AT FINISH, JUNCTION JERICHO PIKE AND MINEOLA AVENUE
2. MINEOLA GRADE CROSSING AND SITE OF GRANDSTAND
3. UNDER THE RAILROAD NEAR ROSLYN

right hand hairpin turn at an extreme angle in old Westbury. Up to within about a mile of the latter place, the course as described thus far is exactly the same as last year. The new course leaves the old just north of Old Westbury and the extremely peculiar shaped detour was found necessary for the double purpose of eliminating the Albertson "S" which was looked upon as fatal to the chances of many of the contestants last year and which did bring Foxhall Keene to grief, and to escape the village of Roslyn which would have involved a control.

In addition to avoiding the Albertson "S" the treacherous turn in the Guinea Woods has been eliminated by the change just described. About a mile or two west of Old Westbury, the course dives under the Oyster Bay branch of the Long Island Railroad, this reducing the number of grade crossings on the course this year to one—that at Mineola and in plain sight of the grand stand. After leaving the railway about a mile the course turns to the right again and trends northerly until it again strikes the North Hempstead Turnpike, this involving another left hand turn. It then proceeds westerly, through the village of Manhasset until opposite Lakeville when another left hand turn is made. The direction is then due south which is followed until last year's Lakeville corner is reached where a right hand turn will take the cars into the Willets Road, travelling in a direction just the reverse of that in which this part of the course was covered last year.

This change was found necessary in order to eliminate the Hyde Park corner, owing to the fact that trolley tracks have been laid on the Jericho Turnpike from Queens to Mineola since last October. The Willets Road is followed in an easterly direc-where another right hand turn will bring the cars into the short home stretch, terminating in what is probably as bad a turn as any on the course at the finish. This is the junction of the Jericho Turnpike with Mineola avenue, making a right angled corner, the view being entirely obscured by buildings almost on the line of the roadway thus rendering it a blind turn, while its absolute flatness is also a bad feature.

In avoiding the dangers that characterized last year's course as well as those that have grown up on it in the interim the number of turns has been increased from seven to eleven of which three are right-hand—the hairpin at Old Westbury, that at Roselyn and that from the Willetts Road into Mineola avenue, in place of the single right hand turn that marked the only exception to last year's string of left hand curves. But the new turns are sajd to be easier and safer. In addition, more hill climbing has been added as the detour necessitated by the elimination of the Albertson "S" involves a dip into the valley in which Roslyn is situated, beside which the North Hempstead Turnpike between

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THE NEW "HAIRPIN" AT OLD WESTBURY



the latter place and Manhasset is rolling for almost the entire distance and there are one or two good hills.

The sections of the old circuit eliminated are part of the Back Road, the Albertson or Willett's Road, from Albertson to Searingtown, the Lakeville Road, from Lakeville to Hyde Park corner and the Jericho Turnpike from Hyde Park avenue to Mineola avenue. The old course was slightly more than 28 miles to the lap while the changes made will bring this to about an even 30, which will make both the elimination trials and the race itself nearer 300 miles than last year. According to Jefferson de Mont Thompson, who was present at the French race, the course selected is superior to the Sarthe Circuit over which the Grand Prix was run. W. K. Vanderbilt, Jr., the donor of the cup, is also satisfied with the course, and upon his approval it was definitely chosen. Signs denoting turns, hills, and bad places in the course, will be set wherever necessary and will be the same as those employed in the Grand Prix.

The opinion of the chairman of the racing committee of the A. A. A. that the new course is both safer and faster than the old is not shared by motorists who have been over it, nor for that matter by some of the prospective competitors. Both the additional curves and the grades will combine to make it much slower and this will be increased by the fact that the backstretch as now mapped out is so cut up into turns and short stretches that there are very few places in which it will be safe to speed up except momentarily. Where safety is concerned, while it was all very well to eliminate the Albertson "S," some of the drivers think that a far more dangerous piece of road has been substituted.

They point to the fact that the "hairpin" turn at Old Westbury is more deserving of this title than any curve that has ever marked a road course in this country as it practically doubles back upon itself and a slow-down to half speed or less will be absolutely necessary to negotiate it at all. Then there is the bad turn leading into a stiff grade that ascends from the Rosiyn valley which is considered by some to be as dangerous as any of those that have been eliminated. The Albertson "S" was a notoriously dengerous spot and all the drivers in last year's race realized this and took it as easily as possible, but where there are so many curves it will not be policy on the part of the drivers to slow up for all of them and greater recklessness will result.

The subject of detachable rims came up for discussion at the meeting of the cup commission which was held at the Automobile Club of America, at the same time that the Nassau County Board of Supervisors met to pass on the application for the course.

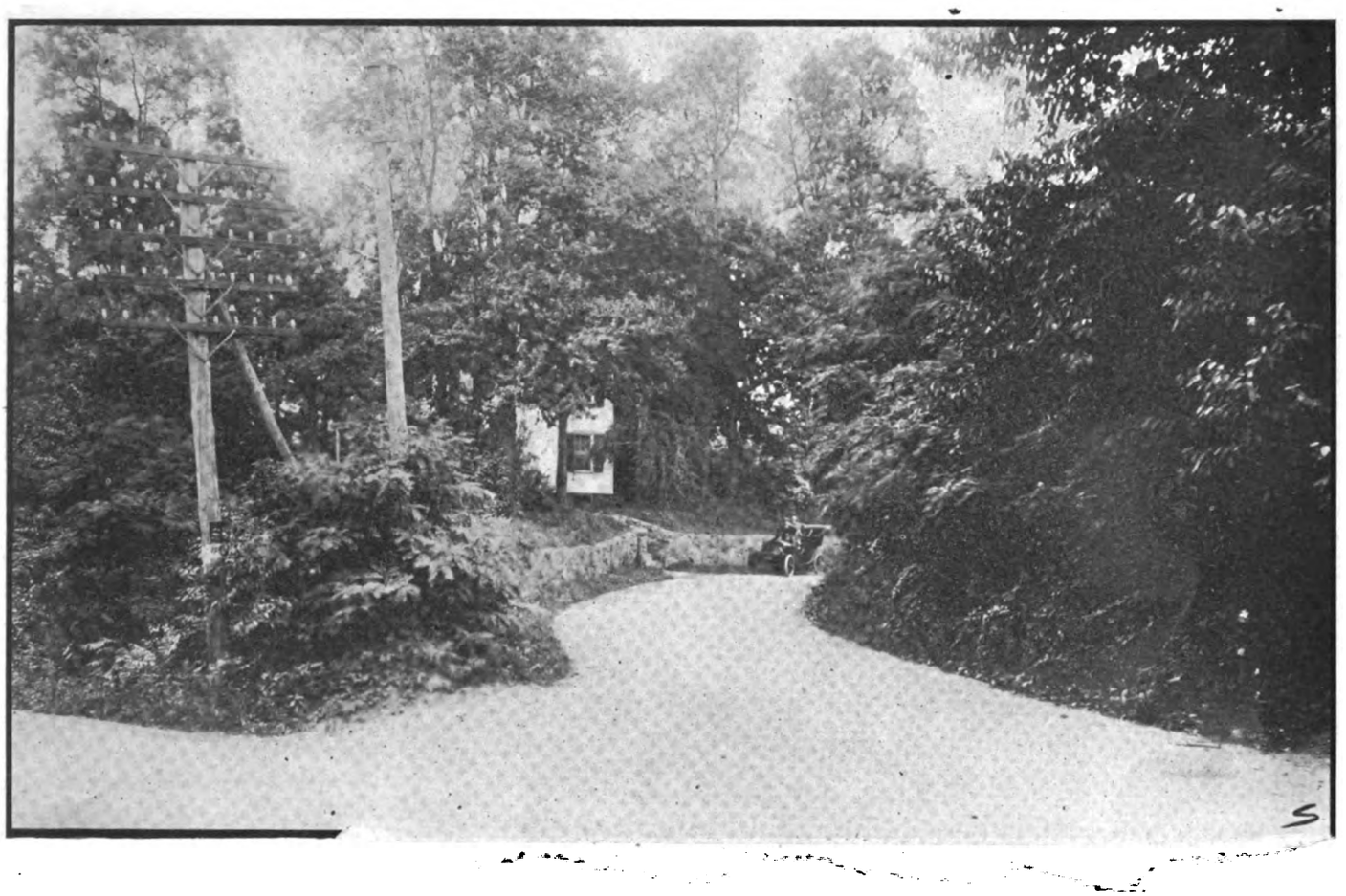
It was decided not to bar any type of rim, detachable or otherwise, and it was further made known that two American firms had announced their intention of constructing detachable rims for use in the race in addition to those prepared by one of the cup entrants. The changed attitude of the Nassau County Authorities toward the holding of the race is strikingly evident in the remarks of the chairman after approval had been formally given.

"The county of Nassau will not be put to a penny's expense, and will be benefitted by the visit of many thousands of people from all parts of the world," he said, after the application had been approved. "Nassau never had such an advertisement as the Vanderbilt Cup races, saving, possibly, the residence here of President Roosevelt. The people are seeing now that the county's best interests are being served when the Supervisors approve the application for the use of the roads for a few hours."

While it was generally considered that the formal consent of the Board of Supervisors of Nassau County, given at their meeting on Monday last, settled the matter of the use of the course once and for all,

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BLIND TURN AT TOP OF ROSLYN HILL



this proved not to be the case, for it developed a day or two later that the changes made with a view to the elimination of the Albertson "S" made that part of the new backstretch include portions of the Old Roslyn Road connecting Old Waterbury and Roslyn. In itself, this would not be of any particular importance except for the fact that the particular stretch of highway in question happens to be town property, and accordingly not subject to the jurisdiction of the County Board of Supervisors. Hence, the permission granted by the latter did not extend to it and at a meeting held on the same day the North Hempstead Highway Commissioners decided not to grant permission to use it for the race. A second meeting was called on Wednesday to reconsider this decision, however, and the presence of Chairman Thompson, of the A. A. A. racing committee, had the desired moral effect, so that now all question as to the course is definitely settled by the removal of this last obstruction.

The work of oiling the course will be undertaken immediately and despite the experience gained last year it has been decided to apply but one heavy coat of oil instead of the two dressings which were found necessary in order to effectually lay the dust for the race last October. It will be recalled that a heavy dressing was given the old course preparatory to the elimination trials, but it was found necessary to repeat it. The American entries are as follows:

Car	H. P.	Entered by	Driver
Pope-Toledo	120	Col. A. Pope	H. H. Lytle
Matheson	60	Makers	R. Mongini
B. L. & M.	100	Makers	———
Oldsmobile	60	Gen. G. M. Smith	E. Keeler
Haynes	50	Makers	F. Sweigart
Christie	110	W. P. Christie	W. P. Christie
Locomobile	90	S. S. Davis, Jr.	Joe Tracy
Maxwell	100	Makers	J. Fred Betz 3d
Thomas	115	H. S. Houpt	M. Roberts
Thomas	115	C. A. Coey	H. Le Blon
Thomas	115	E. R. Thomas	G. Callois
Frayer-Miller	110	Oscar S. Lear	E. H. Belden
Frayer-Miller	110	W. J. Miller	F. E. Moscovics
Frayer-Miller	110	J. F. Stone	Lee Frayer
Apperson	80	Makers	G. Robertson

Olds Abandon Six-Cylinder Car.

Coincident with the announcement of the course for this year's running of the Vanderbilt race, comes one to the effect that the Olds Motor Works have abandoned the idea of employing their specially designed six-cylinder racing car to represent them in the eliminating trials and will employ a 1907 stock model of the four-cylinder type instead. In this connection, all reports concerning the participation of an Oldsmobile in the trials have centered about the specially built racing car, so that it was not known that a four-cylindered car has been bnuilding for the same purpose, the latter being a duplicate of the stock model for 1907. A tryout of the two for consistency on a maintained high speed developed the fact that the four-cylinder motor averaged better work than the six where endurance was concerned, besides having the further advantage of reduced weight and minimizing the chances of imperfection in its accessories.

According to vice-president F. L. Smith, "a 60 or 70 horsepower machine of light weight and geared in the proper ratio, will develop as much speed as one with twice the horsepower and increased weight. Our car will develop 60 horsepower and weigh about 1,500 pounds. The light weight will go far to minimize tire trouble and removable rims will be employed to help us in what we do have."

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POOR TIME AT HAGERSTOWN

Oldfield and Bald Meet the Local Talent in Maryland.

Barney Oldfield defeated E. C. Bald in two straight heats at the race meet of the Hagerstown (Md.) Automobile Club on the half-mile trotting track at that place on Tuesday afternoon of last week. A large crowd witnessed the races. The poor time registered was due to the track not being banked. Oldfield and Howard W. Gill, of Baltimore, were the star performers, for besides winning the match with Bald, the former won a 2½-mile match against Gill and set up a record for the track of 1:16. Gill won in a match race against Harold L. Pope.

In the first heat of the Oldfield-Bald match the former had an easy victory, winning out in 2:49½. The distance was two miles. In the second heat Oldfield drew his finish closer and passed under the wire less than a half-length in front. Time, 2:59.

Match races and trials against time ruled the day. Harold L. Pope, at the wheel of a Pope-Tribune, and Gill, driving a 24 horsepower Stevens-Duryea, lined up for a two and one-half mile race, each car carrying two passengers. Gill finished first, his time being 3:59½. Then Gill tried conclusions with Oldfield, the latter driving a 24 horsepower Peerless, the distance being the same as in the other race. Oldfield won, covering the five laps in 4:35½.

In the time trials Oldfield made the best performance of the afternoon, driving two laps in 1:16 and setting up a record for the Hagerstown oval. Bald's mile was accomplished in 1:22 and a 22 horsepower Crawford car made two trials, carrying two passengers each time. The first mile was done in 1:46 and the second in 1:39. The summaries:

Two and one-half mile match between Harold L. Pope, 16 h. p. Pope-Tribune, and Howard W. Gill, 24 h. p. Stevens-Duryea—Won by Gill. Time, 3:59½.

Two and one-half mile match between Barney Oldfield, 24 h. p. Peerless, and Howard W. Gill, 24 h. p. Stevens-Duryea—Won by Oldfield. Time, 4:35½.

Two mile match between Barney Oldfield (Peerless Green Dragon) and E. C. Bald (Peerless White Ghost) for $1,000 purse—First heat won by Oldfield. Time, 2:49½. Second heat won by Oldfield. Time, 2:59.

One mile time trials—Barney Oldfield, Green Dragon, 1:16; E. C. Bald, White Ghost, 1:22; William J. Boswell, 24 h. p. Crawford, 1:46 and 1:39.

Much-Postponed Meet for Labor Day.

Quite an interesting program has been arranged for the much deferred race meet of the New Jersey Automobile and Motor Club, which is calendered for Waverly Park on Labor Day, September 3. An effort is now being made to secure crack drivers of national repute to drive in special events, and if this is done, no doubt the meet will attract a record-breaking crowd, as there were about 15,000 spectators in attendance at the last meet of the Jersey organization. This is due to the fact that no admission fee is charged. As now arranged, the events included are as follows:

Twenty-five mile handicap, for cars costing from $750 to $4,000; five-mile for single-cylinder cars of 8 to 12 horsepower and costing not more than $1,000, no equipment restriction; five-mile, for cars costing from $750 to $1,000; five-mile handicap, for N. J. A. and M. C. members only; five-mile, for cars costing from $1,400 to $3,000; ten-mile, free-for-all, no equipment restrictions; pursuit race, open to all cars, with provision that an automobile, when overtaken by another, shall drop out from the race until only two are left, which two, if either can overtake the other, shall continue five miles further, the car making the best time to be declared the winner; five-mile, N. J. A. and M. C. handicap, first and second cars in each event except the first to qualify for $100 cup, now held by the Motorvehicle Company, and to become the permanent property of the person winning it the most times in five years, a gold medal to the winner each year.

Second to None.

A professor at the Charlottenburg Technical College, in Germany, once remarked to his engineering class, "A Yankee needs only to see a machine in order to improve on it. This expression of a prevailing impression, born of bitter experience in manufacturing lines, but voices the attitude of the world at large, in its tacit tribute to the national inventive genius. American automobiles were for a time unkindly, though perhaps with reason, reputed to be behind the ranks of those produced abroad, but the time has come when the ability to create and the ability to improve upon the work of others has commenced to tell for something, and the industry seems to be fast gaining a position in which it will discover itself to be pre-eminent.

St. Louis to Have Labor Day Meet.

A sanctioned race meet at St. Louis, Mo., of which J. H. Phillips figures as the manager, is scheduled for Sept. 3d. Six events are carded, the chief of which is a 50 miles race for stock cars and a 10 miles open, the latter of which a purse of $500 is offered as first prize, and $100 as second.

Grand Finale of Horse Races.

After a card of horse races had been run off at the Kittanning (Pa.) fair on Wednesday of last week, John Jennings, a Pittsburg coal operator, set out to make a mile record for the half-mile track, in a 45 horsepower Pierce. He covered the two laps in 1:23⅕, which is a record for that track.

QUAKER CITY'S BIGGEST MEET

Crowd Turns Out in Force to See Some Excellent Brushes.

Record-breaking performances and a record-breaking crowd featured the automobile race meet held on the Point Breeze track, at Philadelphia, yesterday (Wednesday) afternoon. E. K. Kelly, driving a Thomas car, lowered the fifty-mile record for touring cars to 1 hour 3 minutes 19¼ seconds, and Barney Oldfield clipped a couple of seconds from the track record made last year by Mortimer Roberts. The largest crowd that has ever attended a race meet of this character in Philadelphia was on hand to cheer the star performers, the number being estimated anywhere from 6,000 to 9,000.

Although coming late on the program, the fifty-mile endurance derby was by no means the least interesting feature of the afternoon's sport. Six cars lined up at the start, including two Clevelands, a Thomas, a Packard, a Matheson and a Stanley. For the first two miles the cars were well bunched, but in the third lap the Stanley tea-kettle opened its spout and drew a substantial lead, followed in order by the Thomas, Packard, Matheson and two Clevelands. They continued in this order until the eighth mile when, the tea kettle having used up about all her steam, the Thomas, with Kelley at the helm, gradually closed up the lap and took the lead, after which it was never headed. The Stanley quit on the next lap. Wayne Davis was at the wheel of the Packard, Tom Cooper on the Matheson and Wally Owens and Jimmy Laughlin on the two Clevelands. From the tenth mile the Thomas began to burn up the track and gradually increased its lead and at the twentieth mile it had lapped all the other cars. Kelly was reeling off miles in 1:15, 1:16 and 1:17 and thus early it was seen that, barring accidents, the Thomas would win the race with ease and shatter the record for touring cars. When the Thomas crossed the tape a winner, after reeling off fifty miles, the Packard was a trifle over two miles behind, the Matheson nearly three, and the two Cleveland cars were four miles in the rear, the one driven by Laughlin sustaining a puncture in the fortieth mile and being driven the rest of the distance on a flat tire.

Oldfield's record for the Point Breeze track was accomplished in a record trial with the Green Dragon. Barney made the circuit in 1:02, thus reducing Roberts's time ⅘ of a second.

In the Atlantic City sweepstakes, in two heats and a final, the trials at three miles and the final at five, Barney Oldfield showed his skill in drawing a close finish by beating Bald in the sprint for the tape by less than two feet. It was a thrilling finish and the spectators simply yelled

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themselves hoarse. In the first heat E. C. Bald lined up against Tom Cooper and defeated him, while in the second Oldfield had an easy victory over Howard Gill's steam car. This brought Oldfield and Bald together for the final and when the announcer enlightened the crowd by saying that the race was for a purse of $2,000 in gold the enthusiasm of the vast throng knew no restraint. Big purses and Oldfieldian race meets go hand in hand. After two false starts Oldfield and Bald got away for the final. Bald opened up at the start and got the pole, consequently gaining a little at each turn. Oldfield gained in the stretches so the cars seemed very evenly matched. At the fourth mile, or rather on the bell lap, Oldfield and Bald came down the stretch neck and neck. As the cars circled the track for the last time Bald gained a little and was leading by a length when they rounded the last turn and came whizzing down the stretch for the final spurt. Oldfield opened the throttle of the Green Dragon wide and nailed Bald at the tape, winning out by less than two feet, the closest finish ever seen in Philadelphia, and one which appealed mightily to the crowd.

Bald's coolness and supreme nerve which he early acquired in the bicycle game, where he was one of the foremost circuit chasers and which was latter accentuated after his entrance into the automobile game, stood him in good stead in his heat with Tom Cooper. At the half mile turn on the first lap Bald's car nosed against Cooper's Matheson. The impulse of the shock was sufficient to shunt Bald's car toward the opposite side of the track and for an instant it looked as though the daring driver would be hurled through the fence and down the embankment to possible destruction. But even as the spectators held their breaths, Bald gave a twist of the steering wheel that set the car right again and he was away and down the track after Cooper. The incident filled the crowd with mighty admiration for the daring driver's pluck and coolness.

Maxwell cars had an easy time in the stock car events, romping under the wire for two firsts. In the three mile open for runabouts the Maxwell scored one, two and three and in a sperial race for Maxwell cars, "Billy" David fairly flew away from his competitors. The summaries:

Three miles, for cars listing under $1,000—Won by W. C. Longstreth (Maxwell); second, H. M. David (Maxwell); third, Philip Williams (Maxwell). Time, 4:10⅕.

Three miles, special for Maxwell cars—Won by W. M. David; second, C. W. Longstreth; third, J. C. Davis. Time, 4:35¼.

Atlantic City swepstakes, for $2,000 purse—First heat (three miles) won by E. C. Bald (Peerless White Streak); second, Tom Cooper (Matheson). Time, 3:42⅖. Second heat (three miles) won by Barney Oldfield (Peerless Green Dragon); second, Howard H. Gill (Stanley). Time, 3:18⅕. Final heat (five miles) won by Barney Oldfield; second, E. C. Bald. Time, 5:48.

Quaker Endurance Derby (fifty miles)—Won by E. R. Kelley (Thomas); second, W. Wayne Davis (Packard); third, Tom Cooper (Matheson). Time by miles, 1:36¼, 2:56, 4:14½, 5:29½, 6:47½, 7:01½, 8:28¼, 9:47½, 11:06, 12:24½, 13:41, 14:59¼, 16:19¼, 17:37¾, 18:53¼, 20:09¼, 21:24½, 22:42, 23:59¾, 25:18, 26:34¼, 27:50¼,29:07¼, 30:25½, 31:43¾, 33:01¼, 34:21, 35:36¼, 36:53¼, 38:13¼, 39:29, 40:45½, 42:01¼, 43:16¼, 44:29¾, 45:45, 46,59½, 48:14¼, 49:30, 50:45½, 52:02, 53:16¾, 54:32½, 55:47¾, 57:03½, 58:19¼, 59:34¼, 60:49½, 62:04, 63:19¾.

One mile against time—Barney Oldfield (Peerless Green Dragon). Time, 1:02. (Track record).

Algeria an Excellent Field.

There are few countries that employ as many automobiles as Algeria in proportion to their population, according to James Johnston, American consul at Algeirs. The consul is of the opinion that America might secure a fair, if not a large share of the trade in light and low-priced cars, for which the demand appears likely to continue and increase. The consul writes:

"For the more expensive cars the supply seems to more than keep step with the demand, and competition with the French makers would be difficult. What is wanted is a light two-seated car, and a good hill climber, for level ground is the exception here. But no business, as far as I can see, can be done in Algeria without having sample cars on the spot. People will not buy before seeing the goods. It would therefore be desirable to make arrangements with a good local agent, and before doing so it would be prudent to send out a capable man speaking French, to make himself acquainted with the wants of the country, and with the standing and intelligence of the agents and merchants. It is quite useless to try to do a trade by sending descriptive matter in English, and quoting prices in dollars at the factory.

"Up to the present the French manufacturers do not appear very willing to undertake this class of business, but a serious competition may be expected from Italy. An Italian motor can be sold retail in Algiers at less than $500, freight, duty, and agent's commission all included. The duty is about $120 per ton of 2,240 pounds."

Keep Tabs on the Water.

The water tank is something that should be looked into fully as often as the gasolene and oil tanks. With the majority of cars, this means the radiator as the old-time water tank is no longer an adjunct of the modern car. Take off the cap of this just as frequently as from that of the fuel tank and keep the water level as constant as possible. The water may not boil even though the longer be used, but the loss is considerable nevertheless.

ANOTHER THREE DAY MEET

Atlantic City Club to Hold Another "Racefest" Beginning Labor Day.

Atlantic City, or more properly, the Atlantic City Automobile Club, is preparing for another big beach meet, the races beginning on Labor Day, September, and continuing Tuesday and Wednesday. As arranged the program provides for all classes, and it is expected, with the good condition of the course at present, the record of 35 seconds made by Walter Christie, will be broken. The catalogue of events for which silver shields and cups are offered as prizes, follows:

Record trials, steam car; record trials, gasolene car, 1,432 to 2,204 pounds; record trials, gasolene car, 881 to 1,432 pounds.

Speed classes—Free-for-all championship, flying start; best two out of three heats; for the Atlantic City Cup (value, $500); Standing start championship, gasolene cars. Heavyweight gasolene cars, 1,432 to 2,204 pounds. Middleweight gasolene cars, 881 to 1,432 pounds. Four-cylinder cars, championship.

Races for touring cars—Championship, open to all cars of 60 horsepower or less; regular equipment; to carry five passengers; for the Bureau of Information Cup (value, $500). John H. Lyons Cup, open to American touring cars of 60 horsepower or less; owners to drive. Cars selling at $5,000 or less; regular equipment. Cars (gasolene) selling at $3,000 or less; regular equipment. Cars (all types) selling at $3,000 or less; regular equipment. Cars (gasolene) selling at $1,500 or less; regular equipment. Foreign car race, open to all foreign touring cars of 50 horsepower or less; regular equipment. Runabouts (gasolene) selling at $1,000 or less and made to carry two passengers. Price handicaps, for four-cylinder touring cars; regular equipment; $5,000 car at scratch; handicap of one second for each $100 less in price. Price handicap, for two-cylinder touring cars; regular equipment; $1,800 car at scratch; handicap of one second for each $100 less in price. Class handicap, for two-cylinder touring cars; regular equipment; $1,800 car at scratch; handicap of one secoid for each $100 less in price. Class handicap, open to cars that establish marks of 1 minute 10 seconds or better on the beach. Runabout class (all types), handicap; to carry two passengers, as per catalogue specification. Price handicap, for touring cars; $2,500 car at scratch; handicap of one second for each $100 less in price.

Special contests—Obstacle race for cars over 100-inch wheel base; obstacle race for cars under 100-inch wheel base.

James Noble, formerly postmaster at Tyre, Ga., has been taken to an insane asylum, relates an Augusta (Ga.) paper. Noble wanted to build a golden speedway for automobiles.

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THE EIGHT-CYLINDER MAXWELL RACING CAR NEARING COMPLETION



While the full particulars of the cars which are entered for the forthcoming eliminating trial will not be available for several weeks, yet sufficient details of one and another are known to form a basis for interesting speculation. The accompanying illustration shows the chassis of the eight-cylinder Maxwell under construction at the Tarrytown shops. As will be noticed, it embodies the well-known feature of unit construction, which is a Maxwell characteristic, being practically a joining up of two of the four-cylinder engines, end to end. The placing of a flywheel at either end of the crankshaft, is a point worthy of note, as it will tend to prevent torsional displacement of that part under load.

While both of the four-cylinder units are assembled on a single crankcase of aluminum, they are independent of one another in the majority of other features, such as that of fuel supply for which two carburetters are provided as shown. Regardless of the weight limit set by the racing rules themselves, every effort has been made to save unnecessary weight in the construction of the car, as it goes without saying that the designer who appreciates the extreme importance that the ratio of horsepower bears to weight has on the speed is most apt to turn out a fast racing machine. There has been a tendency in some quarters to burden racing cars with monster engines of tremendous horsepower, but it has almost invariably been necessary to shave frames, braces and everything else in order to bring them within the prescribed limit. Further more, it is noticeable that these freaks have never justified the expenditure incurred in their building. This has been carefully avoided in the design of the Maxwell racer, which, if the hopes of the builders are realized, should prove extremely speedy. As soon as both the eight and twelve-cylinder cars in the course of construction are completed they will be tried out together and the one making the most favorable showing will run in the eliminating trials.

A Word for the Shock Absorber.

"More dust is raised by cars from a rough road than from an equally dusty road, if it be smooth, at an equal speed of travelling," is the conclusion of an authority who has made an extensive study of this all important subject with a view to devising means for its prevention. At first sight this piece of information does not appear to be of any great weight one way or the other, but upon second thought it will be seen to have a direct bearing upon the car and its equipment. It has been conclusively demonstrated that certain types of body are conducive to dust raising, and the same is true of uncovered projections beneath the car. Curves have accordingly been altered and smooth enclosing pans placed under the mechanism, in some cases extending the entire length of the chassis.

But further improvement is still imperative and the above conclusion points the way to the achievement of at least one more step forward. Translated, it means that a car fitted with shock absorbers raises far less dust than one not so provided and the reason is not far to seek. Their effect is to keep the wheels, and particularly the driving wheels which sin most where dust raising is concerned, constantly in contact with the ground, instead of leaping from the crest of one depression to the next, and is the case where a stiffly sprung car is run without these road equalizers. By their tendency to keep the springs moving slowly regardless of the nature of the roadway, and particularly in their function of preventing a sudden recoil, the shock absorbers perform a function which their designers probably never thought of when they were first devised. Anything that overcomes the plunging action of the whole car that is invariably set up by a rolling road will tend to lessen the amount of dust raised, as well as increasing the passengers' comfort.

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CRANKSHAFT NO LARGER

Curious Anomaly of Internal Combustion Motor Explained by its Operation.

Since it appears to be a foregone conclusion that a two-cylinder motor will require a chankshaft of double the strength required by a single cylinder motor of half the power, it is apt to come as something of a shock to the novice to learn that such is not the case, but, as a matter of fact, that even a four-cylinder motor requires a shaft but little stronger than that of a single cylinder machine of a power equal to that of one of its cylinders, while a six cylinder machine uses a shaft which need not of necessity be be of much greater strength than that of a four cylinder. This, taken together with the fact that even though this be the case, the transmission shaft which takes the power from the motor to the transmission is called upon for an increase in strength which is directly in proportion to the added increments of power, and the perplexity is greatly increased. The apparent paradox is however readily explained by the fact that the power effort of the internal combustion engine of the Otto type is developed in successive impulses, no two of which are exactly coincident 'n the commoner paterns of motor, and which only partially overlap one another in the three and six-cylinder units.

As a matter of fact, the four cylnder crank shaft need not, in strictest theory, be stronger than that required by the single cylinder machine of one quarter its capacity. The transmission shaft, on the other hand, takes the accumulated power of all the cylinders modulated by the fly-wheel into a fairly even torque, and therefore increased to quadruple that of the single cylinder. As for the crank shaft, however, so long as its power be delivered entirely at one end, it is evident that the stress to which it is subjected increases with the number of cylinders only in proportion to the load due to the friction of the several pistons in their cylinders and their compression. The overlapping impulses of the engines which have cylinders in multiples of three, makes a requirement altered somewhat, but not directly in proportion to the numer added.

In this connection a curious instance, showing how even those who are reputed to have an intimate understanding of the characteristics of the internal combustion engine, sometimes fall into error, is noteworthy. Observing how the power of the motor is almost universally taken from the fly-wheel end of the unit, no less a person than the editor of a well-known automobile publication not long since conceived the bright idea that since, as he put it, the foremost portion of the crank shaft had to transmit the power of one cylinder, the next in order, that of two, and so on, a material saving of weight could be effected by forming the part with a series of stepped diameters. By this proposed system, the forward portion of the shaft was to be made no larger than that required by a single cylinder motor, the next section of twice the strength, and so on, to the limiting number of cylinders. In this he totally overlooked the fact that successive nature of the impulses materially altered the conditions which he had "discovered."

Like all other organs put into the work of the self-propelled vehicle which is destined for use upon the highway, the crank shaft is constructed with a liberal allowance for safety, and in common practice, is frequently made with nearly four times the section of the single cylinder motor. The fact that the increase in the strength of the section varies with the square of the diameter, rather than directly with that dimention, makes the increase in size as the strength increases, much lower than would at first seem to be necessary. But even taking this into consideration, the shafts of large motors are proportionally smaller than would seem to be required according to the standard set in the design of small units.

Don't Forget the Crankcase.

Nothing illustrates the necessity of looking into the crankcase periodically as the lightning-like rapidity with which damage follows upon a neglect to do so. The great majority of motors are still designed to depend in large part upon splash lubrication to keep the big ends of the connecting rods oiled and to do this properly the oil in the crankcase must be kept at a certain level constantly. Ordinarily the sight feeds will take care of this if set to feed the proper quantity of oil, but the mere fact that they continue to do so uninterruptedly is no guarantee that the moving parts inside the crankcase are receiving the full benefit of every drop of oil that is possing. The pet cock used for draining the case may have partly opened in some mysterious manner, a retaining nut there may have loosened or one of a hundred things may have happened to permit the oil to drain away and nothing but a removal of the hand hole covers will show this. With most drivers, it is the old story of out of sight, out of mind, and this simple precaution is neglected until it is too late. Make a practice of looking into the crankcase frequently.



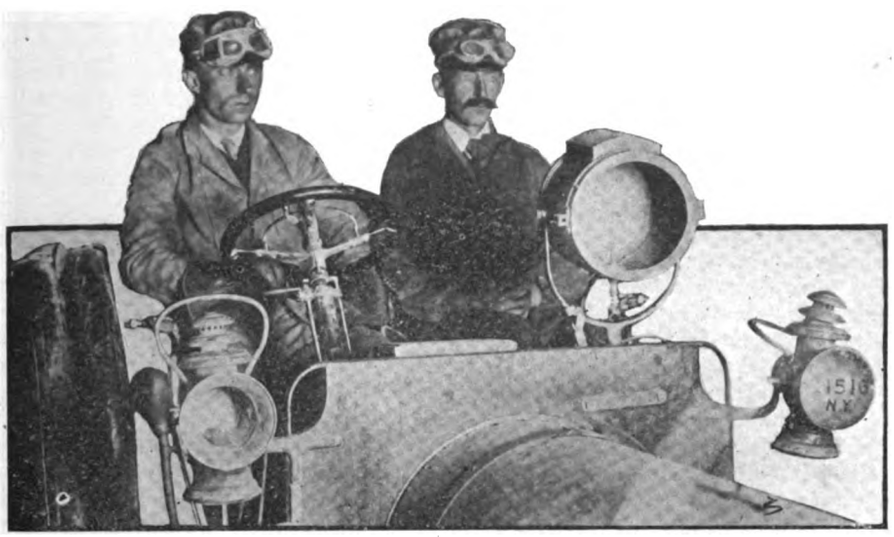
In the forthcoming contests, first for the American elimination and second for the final struggle of the Vanderbilt race, which is now the turning point of all motor talk, the two men here pictured doubtless will be heard from. They are Elmer Apperson and George Robertson, the maker and the driver of the Apperson racer.

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CUT THE TRANSCONTINENTAL

Whitman, in Six-Cylinder Franklin, Chops His Own Record in Half.

Fatigued and weather-stained, but wearing the unerasable smile of victory, L. L. Whitman and C. S. Carris, the two men who engineered the record-breaking transcontinental run from Stockton, Cal., to New York City, in a six-cylinder Franklin car, reached Kingsbridge, the end of their long journey, at 11:30 p. m. Friday night last, having covered the 3,500-mile trip from the Pacific coast in a trifle over 15 days. By doing this they cut the previous record 18 days, which is a remarkable performance. The car left Stockton at 6 p. m. on August 2 and allowing for three hours' difference in time, the time for the journey to Kingsbridge was 15 days 2 hours 12 minutes. Delays en route amounted to 3 days and 20 hours, so that the actual running time was 11 days and 8 hours.



C. S. CARRIS AND L. L. WHITMAN IN THE SIX-CYLINDER FRANKLIN

While all due credit must be given to Whitman for the wonderful ride of 15 days, this is not a record for one man but for a car. Whitman and Carris alternated at the steering wheel of the car, one driving while the other took the train to relieve at some agreed point. To M. S. Bates, James Daly and C. D. Harris, drivers who also alternated during the progress of the trip, must be accorded some of the credit. To Whitman himself and the car must go the greatest praise, for it is doubtful were it not for his persistency and pluck that such time would have been made.

As has been detailed in the Motor World, Whitman and Carris left California at 6 p. m., August 2, and they reached Ogden on August 6, Omaha on August 11, being then 11 days ahead of the old record, made by Whitman in a Franklin car in 1904. Chicago, 492 miles from Omaha, was reached two days later and Buffalo was reached on August 16, a delay of 36 hours having been met with by running into a stone fence at Conneaut, Ohio. About the trip from Buffalo to New York there is little to tell, except that a defective spark plug caused them to reach Herald Square later than they had figured on. It had been reported at Ossining at 9:30 o'clock, and was expected at Herald Square at about 11 p. m., but did not reach there until later. A small crowd of enthusiasts greeted and showered congratulations upon the record-breakers when they arrived.

After a good night's rest, Whitman drove down to the City Hall where he delivered a letter to the Mayor's secretary, from the Mayor of San Francisco to the Mayor of New York City, thanking the people of this city for what assistance they gave at the time of the disaster. He also delivered a letter from Major General Greeley, at San Francisco, to Major General Wade, at Governor's Island and one from the president of the Automobile Club of California to the president of the Automobile Club of America.

Saturday morning Whitman and his colleagues were tendered a "spread" at the Hotel Astor by admiring and appreciative automobilists, and it was there that, standing quietly and unboastful, he detailed the wonderful performance, taking little credit upon himself. Among other things, he said:

"In figuring such a record as we have made in our car, nothing but the actual performance—the elapsed time from start to finish—should be considered. The delays are to be expected, must be counted on; they make the performance difficult and give it half its value. If it were a question of plain driving many hours would long ago have been clipped from this time. Actually, our delays amounted to 73 hours and our hourly stops at the 17 relay points made the time we lost just 6 hours short of 4 days. In figuring actual running time down to 11 days 8 hours I do so merely as a matter of interest.

"We undertook to make the run to ten relay points, working with five men in twelve-hour stretches. As each man finished his run it was necessary for him to jump a train and move on to his next relay. This meant following the railroad all the way and longer distances, but it was the only possible way. The distance by rail from point to point over the route was 3,409 miles. The actual road distance was between 4,100 and 4,200 miles. Our whole course was worked out on maps in advance. In making up these my experience in the two previous trips was of incalculable benefit. Working on the basis of fifteen miles an hour for twenty-four hours a day we expected to get a ten days' result.

"Our daily runs marked out were, of course, laid off with due consideration of the character of the roads and the topography of the country traversed. We had a stretch of 500 miles, from Cheyenne to Omaha, laid off for one day; another of 492 miles, from Omaha to Chicago, and we figured on two days for the 900 miles from Chicago to New York. On the other hand, we laid off a day of 125 miles in Nevada, and considered ourselves lucky if we made it. On that stretch we bettered the time, and so over other difficult stretches. What we considered easy we failed on.

"We started from west to east because the ascent of the mountains is easier coming that way. We lost twelve hours on the second day on account of the swollen rivers of the San Joaquin Valley, requiring fifteen hours to ferry across and make a run that should take three hours ordinarily. We covered 245 miles the first day and 175 miles the second, although the first day included a 7,000-foot climb. So when we came to the Green River we lost three and one-half hours in fording across a tributary, and again in Iowa we lost time similarly. In cross the Green River Carris and Bates had to wade the whole time waist high in ice-cold water and shove the machine across, driven constantly down stream by the swift current.

"Our experience in the quicksands of Humboldt Sink has been told. Here we lost six and a half hours. In East Wyoming we had an exactly similar experience, with a similar loss of time, in mud-holes and quicksands. In Iowa we were held up for eight hours while the wheels of justice ground exceedingly fine because we frightened a farmer's team. We tried to run away, but Winchesters in the hands of irate farmers dissuaded us. In Buffalo we lost one and a half hours for exceeding the speed limit until we could be fined and discharged, and we lost a similar length of time through scaring a canal horse into the Erie canal and having a lock held open until he was fished out.

"Finally, we lost thirty-six hours by the smash-up at Conneaut, Ohio, where we hit a stone fence in the darkness and were thrown over it, while going at a forty-five-mile-an-hour pace. It is a wonder that the machine was not smashed beyond repair there and the men killed. We were mighty

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lucky in this, and the sprained ankle Carris got and the sprained knee Harris sustained were light penalties.

"Our daily stretches from point to point, reckoning at 6 p. m. each day, show our route. They were:

"Aug. 2, start at San Francisco; 3, Summit, Cal.; 4, Lovelock, Nevada; 5, Wells, Necada; 6, Ogden, Utah; 7, Rock Springs, Wyoming; 8, Red Desert, Wyoming; 9, Laramie, Wyoming; 10, Kimball, Neb.; 11, Kearney, Neb.; 12, Cedar Rapids, Iowa; 13, Chicago, Ill.; 14, Cleveland, Ohio; 15, Conneaut, Ohio; 16, Buffalo, N. Y.; 17, Poughkeepsie, N. Y., and at 11 o'clock New York.

"On the whole run—we changed tires at Chicago because we wanted new tires to make a record run to New York—we replaced four spark plugs, and had two punctures. This was absolutely the only damage sustained, except that done when we collided with the fence at Conneaut."

This is the third transcontinental ride Whitman has made in an automobile and he was instrumental in breaking the record twice. The first trip across the continent was made in 1903, by Jackson, of Vermont, who covered the distance in 64 days in a Winton car. Tom Fetch then followed in a Packard the same year and reduced the time four days. The next man to start was Whitman, who made the trip in an Oldsmobile in 72 days. In 1904 Whitman made his record of 33 days, in a Franklin, and it was the same car, but of greater power, that this month reduced the time eighteen days.

To Attack Chicago-New York Record.

On account of the accident at Conneaut, Ohio, which delayed the transcontinental Franklin car thirty-six hours when it was eight hours ahead of the Chicago-New York record, L. L. Whitman, C. S. Carris and associates did not lower the Holcombe-Duffie record of 58 hours made in a Columbia car which they had set out to do after reaching Chicago. To secure more glory and attempt to reduce the present record between these two cities, Bates, Carris, Harris and Daly, who helped in establishing the transcontinental record, left New York Monday for Chicago, driving the car leisurely over the road. In a few days they will start from Chicago, with expectations of lowering the present 58-hour record from there to New York.

Will Make it Hot for Him.

How dangerous it may be to offend the New Jersey automobile law was shown by an incident of last week which arose out of the refusal of a driver to show his license to a Milburn police officer. Ultimately, after having carried the unwilling representative of the State some five miles into the country and there violently deposited him in the underbrush beside the road, the offender made good his escape. After a subsequent hearing in which the owner of the car made his appearance and by proving an alibi, convinced the constabulary that the man they had been after was not the one they wanted, the real chase begun, which at last accounts was still in progress. Meantime, fines and imprisonment await the guilty one of ever he is caught, for it transpires that by a simple act he has succeeded in committing a very complicated offense.

It was in Milburn that Officers Reeves and Peller first noticed a machine standing by the curb which seemed to be not wholly in accord with the requirements of the Frelinghuysen measure. When the chauffeur put in an appearance, he was requested to produce his license, which he failed to do, instead parleying with the two cops until his party had mounted the car, when he started off at full speed. He was not too quick for Reeves, however, who caught on somehow, and stuck to the outfit until a point some five miles out on the road had been reached, where the party combined to dump him into the gutter.

Later, the car was traced by its number, and its owner, Andrew Steidel, of Newark, located in that burg. On his appearance, however, he was able to prove that he had no knowledge of the episode, and that as a matter of fact, the car had been taken out without his knowledge or consent. Reeves then altered his complaint, and drew it up in the form of a warrant against the unknown, who, should he be found, will find himself accountable for the following offenses, with their penalties: Driving car without owners' permission, fine $500 and sixty days, either or both; absence of lights, $10; driving without a license, $500, or sixty days in jail, either or both; failure to have numbers front and back and on lamps, $100; resisting and assaulting an officer, penalty varying with degree; personal assault upon Reeves, subject to Grand Jury; grand larceny in taking the automobile.

Oriental Trip Behind Schedule.

Christian D. Haggerty and Richard H. Little, who are supposedly taking a transcontinental trip in a Buick car in an "endeavor to discover the best automobile"—so the press agent who is maneuvering the scheme says—in the interests of some celestial dignitary, reached Chicago at 10:45 o'clock, Saturday night last. They left New York Thursday morning. At Chicago they were 10 hours 2 minutes behind the record of 58 hours made by Bert Holcombe two years ago, having taken over 68 hours for the trip. They were delayed by several punctures and minor accidents, and the car caught fire while the tanks were being refilled at Syracuse.

Misfiring in a jump spark system is often caused by the unequal wear of the contact segment and insulating material in the commutator. This causes the contact maker to "chatter" at the time of closing the circuit, sometimes even jumping clear over the contact piece before fully recovering itself.

CHARGE IT UP TO THE CITY

Clothes and Goggles are "Equipment" and Knickerbocker Ought to Foot the Bill.

Borough President Coler, who presides over the municipal destiny of the city of churches, and who for some time has been imbued with the spirit of the automobile, has discovered that in this respect, as in others, life is not all "beer and skittles," even for an official of the Greater New York. For in the first place, he has twice fallen under the ban of New Jersey's prohibitory automobile law, and in the second place, Comptroller Metz, the bete noir of all City officialdom, has in warmest terms questioned his taste in including a few articles of wearing apparel in a list of bills for automobiles and other things, which the Comptroller does not approve.

The New Jersey incident opened last Saturday, when in Hackensack, he was arrested and compelled to pay a fine of $27 for driving in the State without one of its licenses. This he did with becoming cheerfulness, but was less complacent when, on the following day he was again hauled before a justice of the peace in Maplewood, and mulcted a further amount for not having the license number displayed on the front lamps, as prescribed by law, and for allowing his tail light to become extinguished. As a result of all this obviously unfair treatment, Mr. Coler is said to have threatened in all seriousness never to set foot or tire in Jersey again.

This incident served to call the attention of the Comptroller to a bill which had just been presented for payment by the city, which included besides an automobile, listed at the bargain figure of $990, a few miscellaneous articles, such as two pairs of goggles, a couple of linen dusters, and a pair of rubber shirt-coats. The automobile was easy, but the notion of the city as purveyor of wearing apparel to its officials struck him as being so novel, that Mr. Metz decided to hold the bill over for a brief period of consideration. Indeed, so forcibly was he struck by the idea, that the worthy comptroller is quoted as having observed that he thought "Coler had a hell of a nerve, and that if this one was allowed to go through, it was not at all unlikely that he would be presenting statements from his tailors before long."

It seems that the $990 car is one of the six runabouts which have recently been purchased for the heads of departments, of whom there are said to be five, the sixth machine being held in reserve for the general use of the Brooklyn clerks and office boys. In response to a quotation of Metz's opinion of his "nerve" in billing $20 worth of clothing to the city, Coler is said to have remarked innocently that he believed they had always been considered a part of the automobile equipment.

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LETTER OF LAW SECONDARY

But Motorphobe Associations Take Exception to Jersey Commissioner's Dictum.

The Highway Protectors' Association of Middlesex county, New Jersey, which was largely instrumental in having the present New Jersey automobile law, commonly known as the Frelinghuysen law, passed, takes vigorous exception to the published sentiments of State Automobile Commissioner J. B. R. Smith, expressed in a letter to Winthrop Scarritt, in which Commissioner Smith is quoted as declaring that an observance of the spirit of the Frelinghuysen law, rather than of its letter, is to be demanded of automobile drivers and owners. The officers of the horse owners' association, with headquarters in New Brunswick, declare there is to be no cessation in its activities, and that it, the association, will see to it that the "letter" of the present New Jersey law is strictly enforced. With this in view the association intends to issue a bulletin for the information of magistrates, justices of the peace and citizens generally throughout the State.

The letter from Mr. Smith to Mr. Scarritt brought from J. C. Higgins, secretary of the above mentioned horse owners' association, a letter to the State Commissioner, inquiring whether he was correctly quoted as not favoring a strict enforcement of the law and whether it would be "necessary to adopt other means for the protection of the highways from automobilists."

That State Automobile Commissioner Smith believes in a square deal policy to all users of the great highways, is evidenced by the following answer to the Highway Protectors' Association:

"Mr. Scarritt advises me that he was misunderstood when he was quoted as saying that I did not favor the strict enforcement to the absolute letter of the new law. The idea he did intend to convey is my position exactly; namely, that a strict enforcement of the spirit of the law does not make necessary the application of the prescribed penalties for every technical violation. The clear purpose of the act is to protect both the natural and legal rights of every class of users of the highways, whether they be autoists, cyclists, drivers of animals (either as beasts of burden, or otherwise), or pedestrians; but not to harass or unnecessarily annoy any one of these classes.

"Because of the peculiar advantages of the autoist, it became necessary to place special limitations upon his use of the roads, besides establishing certain prescribed rules for his identification and apprehension. These rules are necessary in securing redress in cases of violations of any one of the rights of other users. But they should be applied only for the purpose of securing these rights. It is the violator of these rights that the law seeks to reach, not merely the transgressor of the rules, which may well be termed secondary.

"If these rules are not enforced, the whole scheme must fall; but they can be enforced, and so far as the power and influence of this department goes they will be enforced, with the single idea of protecting everybody in their rightful use of the roads. And in doing this I deem one of the prime necessities to be to place no greater burden upon autoists or any other class of users than is absolutely necessary to accomplish the purpose.

"No law, no matter how wisely drawn or how just it may be, can be successfully enforced if done in an unnecessarily severe or inequitable manner. The people of our own country, especially, have a keen sense of right and justice, and they not only frame their laws with these ends in view, but they insist that they must be administered for the same ends or not at all. In popular government a law soon becomes a dead letter, if these elements are lacking, either in the law or in its enforcement. The Frelinghuysen law will not fail because it does not possess them. If it fails it will be because it has not been wisely administered.

"In our efforts to administer this law, we are receiving the hearty coöperation of a very large and rapidly increasing number of autoists. I sincerely trust that an increasing number of other citizens and officers will be found coming forward with substantial support, and that they will not regard the law satisfactorily enforced and their duty done, when some uninformed transgressor, who may, perchance, have his number too close to the ground, or be found guilty of some similar offence, has been punished; but will unite with the department in freeing the roads of the insolent scorcher and wilful violator. This can be accomplished, at least in a very large degree, if the law is administered in its essential parts, fearlessly, vigorously, wisely and justly, without hatred, contempt, persecution or revenge; and I believe, not otherwise. Already a much better condition is reported throughout the State, and I confidently believe that before the next session of the legislature convenes, many of the abuses will be entirely removed."

'Bus Line Ousts Railway Companies.

Annapolis, Maryland, has for some time been the scene of fierce competition between two rival street railway companies for the use of its streets, but now another rival has entered the field and it seems likely to get the franchise, according to reports from Maryland's capital. The new project is to run electric automobile 'busses between Annapolis, Eastport, Germantown, West Annapolis and other suburban places. The promoter is sanguine of success and has opened negotiations with a Washington firm to furnish the cars.

"Police Controls" is the new term for the familiar police trap which causes the motoring Briton so much loss of sleep.

WASN'T "WISE" TO THE GEAR

Beginner Didn't Know the Peculiarities of the Planetary Gear and Had to Tow.

"That poet or poetess, whichever it was, who evolved 'Bubble, bubble, toil and trouble,' delivered the goods alright," broke forth the slangy member of a party on tour who had halted to refresh the inner man and having done so to good effect had arrived at that stage of complacent content with all the world that will regard even a tire blow-out or a stripped gear as a trivial thing—provided it is in the past tense.

"Like most hands new at the game in the early days, I started in with a little one-lunger," he continued. "One of those with the 'wobble it' steering handles that gave rise to the name 'benzine buggy.' Nowadays even the beginner plunges right into the thick of things by buying the biggest and most expensive car that a draft on the governor or a mortgage on the farm will provide. We were more careful. A dollar looks just as big to-day as it did then, but somehow or other the thought of paying anywhere from $2,500 up to $5,000 or more for a car has lost most of its terrors. The mere idea of paying such a price as that for an uncertain bunch of trouble was enough to drive a man to the nearest bar hotfoot. He would investigate alcohol as a fuel for internal combustion and then if he felt better, but not too well, he might hesitatingly part with something less than a 'thou.'

"Then the sequel would all depend upon how easily discouraged he happened to be, how well his pocket stood the racket and how often per week the machine would consent to put in a good lick or two without requiring a massage operation from beneath. One of those little cars represented the germ of the disease and when a man had been the owner of one for a few months he usually was taken with a bad case of it. 'When it runs, it's simply fine,' would be his conclusion, and when he was out on the road giving the dust to his friends who still stuck to horses, he could easily forget all the troubles and tinkering he may have had and what it was costing him per mile travelled in hard cash just to raise that faint cloud of dust.

"Then he would reason that if a little machine would run so fine for a small part of the time, a bigger and better machine might be persuaded to stick at it longer without so much trouble, and that usually meant a bigger machine for him as soon as he could sell the little one—for less than half of what he paid for it usually, and recover from the financial shock. That was my first case at any rate and in the short time that I was the proud possessor of one of those little benzine buggies, I simply soaked up experience in chunks. The amount of knowledge that I absorbed in the course of every week that I ran that

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machine made me think that I was a real wise one when it came to driving an automobile. I was willing to give points to anyone that came along, and whenever I caught anyone in a fix—and sometimes I had that pleasure, although it seemed to me that the shoe was more often on the other foot, I usually didn't wait to be asked for advice but sailed right in.

"Unfortunately though, most of my knowledge became obsolete when I parted with that car, for I have never owned another one just like it—in fact, I always took particular pains to see that any machine I considered favorably was lacking in just those features which had characterized my first attempt. I like to run my own machine and to take care of it, but I'm getting too old to have any fondness for gazing upward from beneath while hot water dripped in one eye and warm oil in the other, nor have I any ambition to imitate the professional contortionist of the variety. Why, hang it, some of the places on that machine were so confoundedly inaccessible that I couldn't even get my hand in them and I had to call my wife to my aid. But usually it needed the strength of a man's hand with the size of a girl's, so that in the end things had to come down generally until we could get at them directly.

"One of the things that was a mystery to me was the planetary change-speed gear and if I had been wise to it, I would have saved the price of a tow home one day as well as a good wetting and considerable stiffness for two or three days thereafter. I knew the thing was a regular bunch of works, because I had seen pictures of them labeled 'See how simple the blank gear is; pinions always in mesh; runs in oil, no wear, no danger of stripping' and a lot more like that hashed up by the professional hand-out man in the employ of the company, for the benefit of the dear public. I have always had an ardent desire to see the wheels go round with anything that I've owned, and sometimes with things that were not mine, to my sorrow, but this time I held back. I had no desire to uncover all those little 'innards.' I was afraid I might be like the young M. D. who excavated a patient for appendicitis and found himself unable to get all the trimmings back in their right places. I wisely refrained and—the gear ran alright, for the trouble that cost me a tow had nothing to do with the inside.

"You know how that kind of a gear has a couple of brake bands on it that you tighten up by throwing the lever forward," he continued, inquiringly. Then resuming without waiting for an answer, "Those things have to be just so or there's trouble in store. If they are too loose, you will stall on the very first hill you come to and you can run the engine clear off the frame without getting ahead so much as a foot. Then you get out and throw most of the body off into the road while you tighten things a bit and if the hill is pretty steep you're apt to give her all she can stand without stopping the engine, and that's a fatal mistake. She will take that hill alright but there is trouble in store for you.

"At first I had a habit of tightening the low gear so that the car would climb a tree, but it sprung the brake band shaft and sheared off the pins holding it in place faster than I could replace them. Then the reverse did not appear to work well so I tightened that up the same way and then it wouldn't work at all. I paid for being shown that it would work in good shape if it were left very loose and since then haven't had any trouble with it, but that is since my experience with the low.

"That was on one of those cold rainy days with everything leaking—one of those occasions when it was so gloomy and dismal and the rain comes down so incessantly that you are inclined to think it will never let up. Another fellow and myself started to take the car to the station to meet a friend and the car acted peculiarly right from the start—wouldn't run on the high at all—the engine would shut down the minute it was thrown in, so we decided it was the low or nothing and hoped that that would hold out until we got there, but it was not to be. Within a mile or so of the station she died. We heard the train come and go and wondered what the friend would do, but still there was no result from the tinkering and cranking which we indulged in alternately. What made it so all-fired exasperating was the fact that every time we turned her over she would cough in good shape and sometimes make two or three strokes before gasping out. Once or twice the running was continued for half a minute or more but something or other was too much for it and she would invariably die again.

"After about an hour or more of that, when both of us were soaked through and our strength as well as patience was utterly exhausted, we gave it up and accepted the offer of a friendly farmer to tow us the two miles between there and the nearest repair shop. And the way that fellow fixed her up and had her running in good shape, all in less than five minutes, was simply disgusting. He started her to push her into the shop from where the farm wagon dropped us, but she simply wouldn't budge.

"'Well, strike me pink,' he says. 'Ave you been a'trying to run her with h'all the brakes set?' And that riled me through and through. I never did have much of an opinion of those cockney repairers and it went below zero when he made such an asinine suggestion. Why, man alive! you couldn't have set a brake on that car unless you sat in it and held the pedal down with your foot. But whatever the trouble was, the combined efforts of three men simply couldn't stir a wheel. At the first shove she would go forward an inch or two and then the chain would tighten up and nothing short of a team of horses would take her any further.

"Our English friend took a look around and found all of the brakes loose and then he did what we should have done earlier in the day, but which never so much as occurred to me, and that was loosen up the brake band of the low gear on the planetary. Then she shoved without any trouble and once on the floor the first few turns of the crank started her running in good shape. It was certainly a good illustration of the value of a little knowledge and I have never been caught that way since."

Jersey Roads to be Lighted.

One fatality and one collision with the bridge over the meadow boulevard into Atlantic City has called attention to the need of painting the approaches white instead of lead color, which now makes them practically invisible to approaching drivers. A coroner's jury has censured the Board of Freeholders for not having lights placed on all bridges on the drive. The roadway is sixty feet in width, but fences narrow it down to twenty feet at the approach of bridges, which makes fast travelling dangerous,a lthough the boulevard is one of the finest stretches of road in New Jersey. On account of the accidents of late the freeholders have authorized the lighting of the road its entire length and will have the approaches to the bridges painted white.

Pinched the Loser.

It is energetic of a police department to recover an automobile two hours after it is stolen, but it is really too much for them to arrest a man the next day on the charge of stealing that same car from himself, thinks James Kelley, a Chicago chauffeur. On Wednesday night last the car was stolen from in front of a theatre. The police soon found it, but meanwhile the description had been sent to all the stations. The next day Kelley was arrested after a lively chase, and locked up on the charge of stealing the machine. He had a difficult time in trying to explain that it was his own car that he had been charged with taking.

Cash Prizes for Good Roads.

To encourage the building of good roads the Toronto Automobile Club has offered substantial cash prizes for the best stretches of roadway in Scarboro, Etibicoke, Vaughan, Markham and Yorke townships. The prizes will be $500, $200 and $100, and the points to be considered are proper drainage, serviceability, width, efficiency of crown, hardness, smoothness and permanency of construction.

Rural Minnesota "Justice."

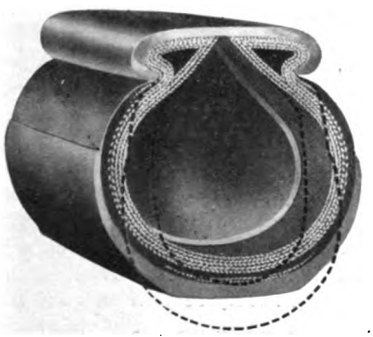
The Ramsey County Board of Equalization, of Minnesota, on Saturday last, decided to raise the tax on automobiles three per cent. The reason given was because it had to make up for slight reductions made in other classes of property.

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EVOLUTION OF TIRE SECTION

What Long Study of Pneumatic Under Working Conditions has Demonstrated.

That there is quite as much importance in the selection and proper delineation of a tire section, as in the choice of the stock which is to go into it and its ultimate treatment in the finishing process, is a theory which is in a large measure proven by the improvement in the life and service of the better class of tires now upon the market. The old notion that the ideal thing was to get the greatest possible amount of air under the rim, and that without increasing the total volume contained in the envelope, has been shown to be a fallacy, because of the fact that tires constructed on this principle become deformed as soon as brought under the weight of the car. This produced just such internal stresses as it is most desirable to avoid, and brought about a deal of trouble from interior disrupture which was



U SHAPED TIRE UNDER LOAD

accountable to the shape, and in no wise to the quality of materials used, though, of course, in some instances, inferior grades of manufacture added this to their structural weakness.

The later method of design, based upon soundest logic, is to build the section in the form which it is to be expected to take under normal load, that is to say, when inflated, and with the car at rest. In this way, the fabric and rubber are primarily made to assume the relation which will be normal to them during life, and the extra stresses to which they will be subjected in use upon the road will be of a purely temporary nature, which their very constitution enables them to resist, and to resist successfully, since their natural state represents the mean of flexture, and the condition existant during the greater portion of the period of use. This fact, and the theory from which the present shapes in use have been evolved, are well developed in a monograph just issued by the G & J Tire Co., Indianapolis, Ind., under the caption, "Proper Tire Coistruction."

In this, the basis of the argument is furnished by the statement that, "The combined strength of the various layers of fabric in a tire is not utilized unless all layers are on an equal tension and act in harmony." Naturally corollary to which is the fact that when the stresses are unequal, the strength of the combined structure is reduced to that of the whole number of layers upon which the burden falls. For example, if a vessel is moored by four anchors, two from the bow and two from the stern, and the set of the current throws her over broadside to, then the task of holding her devolves upon two cables, the other



ROUND TIRE UNDER LOAD

pair being as useless as though they were non-existant.

From this then, it is a natural conclusion that "the several layers of fabric used in the construction may be placed in the tire on an equal tension, but if the tire is not made in the shape it assumes when carrying its load, then the changing of the shape of the tire places unequal strain on the different layers of fabric, and causes friction, which generates heat and produces disintegration."

"European tires, and most tires of American manufacture," continues the article, "were until recently made U-shape, the theory being that the tire would remain in practically this shape when inflated, in which case the tire would measure more from rim to tread surface than in cross section, resulting (had the argument been correct) in greater resiliency or buoyancy for a given sectional diameter than would be the case were the tire round.

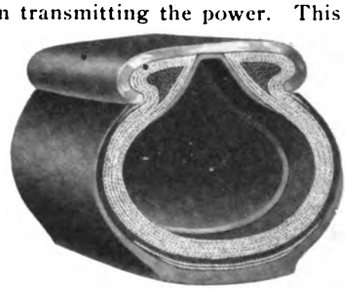


FLAT TREAD TIRE UNDER LOAD

"When a tire is made 'U' shape and is forced round by internal pressure, the outer layers are placed on an abnormal strain and required to carry the greater part of the load. Under these conditions, the various layers, instead of working together, and the strain being distributed among them equally, work against each other, the outer layers being under severe strain, while the inner layers are bending and chafing through lack of uniform tension.

"The tire does its hardest work at the traction, or ground-contact point, consequently the 'U' shaped tire at the working point under load, assumes an oval shape, which distorts the fabric, placing the plies on an unequal strain, and changing the relation of each ply to the other.

"The ordinary round tread tire, as now generally made by American and European manufacturers, when depressed produces an undesirable bending or reverse curve at each extremity of the tread, causing the various plies to work against each other, which results in ply seperation, and tends to loosen the tread. The weight of the load spreads the rubber tread, and the rubber thus piled up pushes against the fabric at a point where it is distorting and torturing itself, and will in time loosen the cover as well as the various plies. It is seldom that the cover is loosened by the tractional pull in transmitting the power. This state-



RAISED TREAD OVAL TIRE NATURAL SHAPE UNDER LOAD

ment is verified by the fact that loose covers rarely develope in the center of the tread, but almost invariably commence on either side of the tread."

The round tire came as a marked improvement over the "U" shape, but was lacking in one respect, that although it was a closer approximation to the shape of the tire in service, yet it did not conform to it absolutely. The G & J Tire Company was the first to make the round shaped tire, and held to it consistently up to the time of bringing out the 1906 design, which was a distinct innovation. In this, the oval raised tread design, the abnormal conditions which are to be found in both the "U" and round shaped tires, are eliminated, the design being based solely on working conditions. The oval tread tends to roll transversely of the car, when any skidding action is produced, thus doing away entirely with the tendency of the rubber to concentrate at the point of contact, as happens with the other types of tread, also effecting a smooth rolling change of the line of contact from the centre to the side, without tending to rip or strain the tread in the process.

In other words, the oval shaped tire is "so built and shaped when made, that the relative positions of the various layers to each other are such that the strain is equally distributed among the several layers when under load, and the tire utilizes the full combined strength of the several layers when and where it is most required."

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IMPROVED OILING SYSTEM

Simple Automatic Device that Increases Quantity of Oil with Speed.

Cylinder lubrication of internal combustion motors is, in the main, attended by two classes of difficulty, which are seldom, if ever overcome with complete and entire satisfaction in the ordinary methods in use. In the first place, the method of distributing the oil over the walls is not always effective, and second, the necessity of graduating the supply to meet the demands of varying speed cannot invariably be met with great nicety under all circumstances. These sources of difficulty are most marked in motors in which the sole dependence is placed upon the splash system, now happily becoming less popular as a main standby than formerly. Several substitute or accessory methods have been designed and applied with greater or less success, but up to the present time, it may fairly be said, that nothing has been contrived which can be approved as being wholly successful, many otherwise pleasing methods, involving too great an amount of complication.

One of the most recent developments along this line, is a system designed by Lester D. Picket, of Fredonia, N. Y., which automatically takes care of the varying rates of feed made necessary by alterations in the speed of the motor. Besides this, it is entirely automatic in other respects, and has the saving grace of simplicity. In a general way, the lubricator itself occupies a position in relation to the supply tank analagous to that of the carburetter with regard to the fuel tank. The mechanism provides means for feeding the cylinders and also the other bearings of the motor, and is entirely automatic, the variations in feed according to the speed changes of the crank shaft being secured by interconnection with the spark controlling lever which, naturally, follows the changes of speed pretty closely.

The apparatus in detail consists of a supply tank, of suitable size and shape, mounted under the bonnet in an elevated position, from which is taken a pipe which leads along the engine and is fitted with a number of T-connections, the first leading to the crank-case, and being used only for refilling it occasionally, and the others being led, one to the base of each cylinder, each being provided with an externally actuated valve. At each of the cylinders, the feed pipe is tapped into the bore near the end of the stroke through an elbow, and connects with a small port which is uncovered at the end of each outstroke and feeds a small quantity of oil, which is caught up and distributed by the piston in its upward sweep.

The valves controlling the admission of the lubricant to the feeding pipes through the T-connections, are controlled by the position of the spark lever, and hence, regulate the flow in proportion to the speed of the motor. The same area of opening for the valves is used regardless of the grade of oil employed, since heavier oils require a smaller feed than lighter grades (which fact is insured by their greater viscosity), without alteration in the adjustment. An air hole is placed in the top of the supply tank and one at the upper end of each of the independent feed pipes, thus preventing any tendency to "gag" under action.

In service the flow from the tank through the system is constant, subject to the regulation of the spark lever and its connections. At each in-stroke of every piston, however, the lubricant standing in the local supply pipe is drawn into the cylinder, its place being taken by air through the hole at the top. During the entire in and out strokes, the pipe is refilled, and the operation is repeated thus, intermittantly at each stroke. The crankshaft bearings are fed by pipes taken from branches of the T-connections, the supply for the entire engine in this way being controlled in proportion to the speed.

Aside from the feature of varying feed graduated according to the speed, one of the principle advantages claimed for the system is that the position of the main supply pipe near the cylinders, secures an even temperature for the oil at all times, regardless of weather and other conditions external to the machine, thus doing away with the necessity of artificially warming the supply during cold weather. The lack of mechanism also is an evident point of advantage, the nature of the device being such that other than to keep the tank filled at all times, and insure the freedom from deposits of all the passages, no further attention is required.

Another Cause of Poor Compression.

It sometimes happens that through the loss of metal due to repeated grindings, one or more of the exhaust valves of a motor settle down so low that the fillet of the stem where it joins the head interferes with the guide, and prevents full closure. The final result of this is that a neat little shoulder is turned up about the stem at that point, and a somewhat confusing loss of compression follows. The remedy is, of course, to take off the shoulder with a file, making sure that the head reaches the seat without friction of the stem and guide, and afterward to test the clearance between the end of the stem and the cam lift, to make sure that there is no interference at this point also.

Straining the Gear-Shift Lever.

If the gear-shifting lever is handled over roughly, there is danger of straining the connections in such a way that afterward, when it is in correct position, the gears will not mesh to the full width of the teeth. While this may not be very likely to occur on a solidly built car, yet it is a possibility which should be guarded against.

HACKING IT DOESN'T PAY

So Say the Disgruntled Ones, but Whence the Marvellous Increase in Their Number?

According to some of those who have undertaken it, the business of renting out automobiles "by the day, hour, or week" as the cards usually have it, is not all beer and skittles. "Five dollars an hour" sounds like a munificent rate of compensation, as does also the tax of $25 or $30 charged when the hiring is done by the day, but say, these malcontents, gasolene, oil and tires cost money and when it is all figured down to a fine point, the man who follows this vocation as a means of gaining a livelihood is not far ahead at the final reckoning.

In substantiation of this view of the matter, it is stated that the renter could obtain at least $5 per day for his services as a chauffeur, that a day's run will consume anywhere from one to three dollars' worth of gasolene at present prices and at least a third that much more will have to be paid for oil, for it is notorious that the average all-day party wants to see the wheels go round incessantly. This is current expense, of course, and to it must be added the occasional puncture or blow out, that means several dollars for repairs, with sooner or later an outer shoe to be replaced—the equivalent of a whole day's remuneration, or an inner tube, which represents a goodly fraction if it. "When the balance has been cast we are hardly as well off as if we were working for wages," say the plaintive members of this gentry.

In the face of such statements, it appears odd that New York "hackers" and "renters" have increased with such amazing rapidity that they now find it difficult to get a place on the stands, which are many times larger than those of the horse driven fraternity, and the latter in some instances have been ousted altogether. But then there is never any great search necessary to unearth members of any calling, whatever it may be, who regard their lot as that of the most downtrodden of all nature's creatures.

Teutons Squeeze the Industry.

Germany's preposterous automobile legislation is said to have had a bad effect on the home industry. Interest in the car on the part of the public has not abated a particle, but the German law is upheld with such reverence and enforced with such strictness that it seems the average Teuton who thought he would invest in a car has decided to hold off and wait until the law in this respect as well as that which makes an automobilist responsible for every accident in which he takes part, saddling him with the life support of all injured and the survivors of those killed, has been in force for a little while. Should his fears materialize, there will be a slump in the home market.

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LET WELL ENOUGH ALONE

Poor Plan to Tinker with Gear Ratio When Engine is Underpowered.

Car owners, and particularly those who boast the possession of machines which are not over blessed with engine power, are frequently tempted to test the effect of increasing the ratio of the final transmission to the driving wheels by increasing the size of the front sprockets or altering the size of the driving pinion if the machine be of the shaft driven type. In this, they are apt to ignore the fact that the original designer had a pretty fair knowledge of the capabilities of the motor, and moreover, was likely in no way loth to provide for the fastest drive which could, in reason, be expected under normal conditions of general use. It is not at all surprising, therefore, that perhaps the greater number of such experiments are abject and disheartening failures. Where they are, the car is not at fault generally speaking, only the owner, but he is seldom disposed to view the matter in that light, strange to relate.

Yet the effect of changing the gear ratio is not confined solely to pulling down the engine, for the result is invariably that of imposing a greater strain upon the transmission, which, of course, puts an added load upon all the parts of the power plant. So that, generally speaking, except where the machine is to be used altogether on level roads, it is the part of wisdom to adhere to the original ratio of gearing, even though from the behavior of the car upon the high gear, it would appear that a change could be made with profit. The manner in which the change of gear affects all the working parts is brought out somewhat in detail by the writer of an article recently appearing in the Autocar. Speaking of the increase in the twisting moment on the gears, he says:

"To illustrate this fact, let us suppose that a car is capable of ascending a long incline (with full load of passengers) on the second gear, and that the engine is developing its maximum power at 1,200 revolutions per minute.

"The same car is afterwards fitted with larger sprockets, and on ascending the same incline under exactly similar conditions it is found that the engine speed is reduced to 900 revolutions per minute, and that the speed of the car itself is the same as before. This, of course, means that the power developed and transmitted to the road wheels is the same as in the first instance, and, since the revolutions of the engine have decreased, the mean pressure on the pistons must have increased, otherwise the power developed would be less. This increase in pressure would be a natural result, owing to greater compression at lower engine speeds.

"And so it follows that the twisting moment transmitted by the crankshaft and gears to the differential case and shaft is augmented, although the power transmitted remains the same.

"If the problem is approached from the other end of the transmission system, it will be seen that the pull on the chains in pounds weight is the same as when the smaller sprockets are in use; and as this pull is acting on the differential shaft at a longer radius (with the large sprockets), the twisting moment to which that shaft is subjected must be greater.

"It may be urged that the car will travel slower in the second instance when ascending the incline, and the engine speed be reduced to 750 revolutions, which means that less power will be transmitted until the driver changes down to the first gear; but the tendency under these circumstances is for the driver to keep the ignition hard up to its work and obtain all the power out of the engine that he can before changing down.

"But in any case, the fact remains that the actual torsional stresses to which the transmission system is subjected are greater for given speeds of the car than when the smaller sprockets were in use, and it is more than likely that trouble will result unless due care is taken to change down earlier than formerly."

Earns $2 a Day; Buys $1,200 Car.

Not content with running an electric car 130 miles a day over the Lake Shore elevated, James McC. Sutt, a Chicago motorman, has invested every cent of his savings in the purchase of a $1,200 automobile. The total income of the Sutt household, its head told the assessors, is $2 a day, but that both he and his wife are more than satisfied with the investment. "My house is only half paid for," says Sutt, "but, of course, you know, we must have some fun in this world."

Silver Chain Came in Handy.

It is related of a motorist who was stalled by a lack of proper ignition which he ultimately traced to the loss of one of the platinum points from a trembler blade, that he made good the deficiency by cutting a link out of his watch chain, and riveting it in place. All of which is very well, except that so few motorists carry silver watch chains, that the incident is of little value as a hint to others in a similar predicament.

Burlington, Wis., Makes its Claim.

Since Cleveland, Ohio, put forth the claim of taking first rank in the number of automobiles in proportion to the city's population, another city has disputed the claim. Burlington, Wis., has 3,000 inhabitants and boasts of nearly 40 automobiles, or one car for every 75 persons. Cleveland's claim was one car for every 150 inhabitants.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding.

ABOUT CASE HARDENING

Details of a Commonly Employed Process That is Little Understood.

While the general processes of converting raw materials into the finished components of the automobile are pretty generally understood by the man in the street, it doubtless is a fact that the evolution of the basic elements themselves is more or less shrouded in mystery. Steel is steel, iron is iron, and generally speaking, their specific differences are recognized only by their properties rather than by the constitutional peculiarities which differentiate them from one another. But whatever may be the average understanding of the relation between the principle materials of construction, the half-way product, known as case-hardened iron or steel, frequent though its application may be, is probably less understood by the user than either the iron or steel in their elementary structure. Yet the methods by which it is obtained are among the simplest known to the exact science of metalurgy, and the structure is one easily comprehensible.

Case-hardening, as the term in itself implies, means the formation of a hardened surface on otherwise soft metal, and the term is used more generally in regard to iron and steel, although to some extent a form of case-hardening can be applied to copper and some of the bronzes having a high fusing temperature, says a writer in the English Machinist.

Ordinary wrought-iron, mild steel, and malleable cast-iron will case-harden well, the last being the least satisfactory, but still for some purposes being very successful. ordinary cast-iron, if treated by the case-hardening process, would rather be softened, owing to its then being annealed with an excess of carbon, part of which would be absorbed.

In some cases only part of an article can be case-hardened, while the other parts are left soft; and although this may involve some trouble, yet for particular purposes the results are worth all the trouble taken.

When iron or steel is case-hardened, the articles are packed in annealing-boxes with animal carbon, and the boxes are covered and the joints luted, or sealed with damp fire-clay, then heated to just that temperature at which absorption of carbon takes place. The time the heat is continued depends on the depth of hardening required, and usually the work is thrown into water and made dead hard as soon as it is considered that a sufficient depth is penetrated by the carbon. With the carbon may be used chemicals to assist in its absorption, cyanides being very frequently used, and according to the skill and practice of individual operators success is secured.

Especially constructed boxes are used, having small holes pierced in the covers

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for the insertion of test wires, these being used to ascertain the state of the heat and the penetration of the carbon. Both circular and rectangular boxes are used, and both forms have their special uses according to the articles to be hardened; but rectangular boxes usually heat most regularly.

The packing may be of bone or leather cuttings, and these may be used raw or after conversion into charcoal. A layer of the carbonized material is laid in the bottom of the box, and then a layer of the articles to be hardened is put in and packed with carbon, and the process is repeated until the box is full. Powdered potassium cyanide or prussiate of potash may be dusted over and among the articles and packing; but in all cases phosphorous-bearing materials are avoided, there being quite enough of this in the carbonaceous matters used. When the box is filled, a layer of the packing material is put over the articles, the box closed, and the cover luted down, the test wires being inserted at the same time. Care must always be taken that the packing is thoroughly dry, otherwise the steam will force the luting, or in some cases force off the cover; in such cases the results not being extremely satisfactory. In packing articles which have only to be case-hardened in parts, the soft portions have a protective covering; while the parts to be made hard are left exposed. For ordinary purposes a mixture of white ash from the boxes and enough fire-clay or pipe-clay to bind the ashes, is as good a mixture as can readily be made to save the soft parts from the carbonaceous packing; but usually each operator has his own especial mixture for the purpose.

When the boxes are ready they must be placed in an oven in such a way as to allow the heat to circulate all around them, and when raised to the necessary heat, they must be kept steadily at that heat until it is judged that the necessary depth of hardening is secured. Small variations of heat will affect the results obtained, and it is safe to say that hardly any two ovens or operators give exactly the same result in a given time. Differences in the packing material also cause some differences in the speed of the penetration of the hardenings.

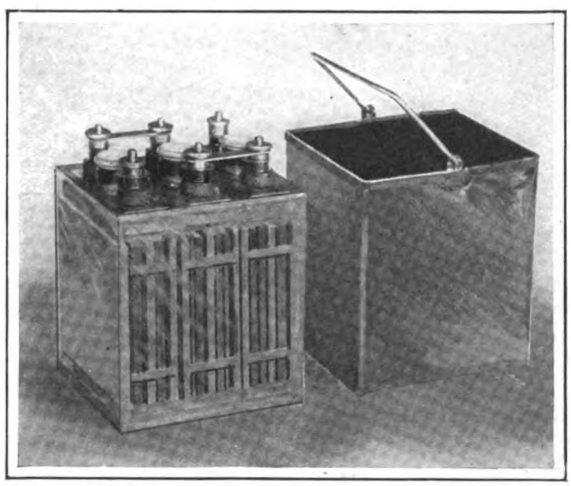
After being placed in the oven, the boxes are raised to the required heat steadily and quickly, and the heat tested from time to time by means of the test wires. The progress of the hardening can also be tested if the wires are of steel, and are quenched in cold water on withdrawal from the boxes. On breaking the wires so treated, the depth of the hardening can be readily ascertained; but this necessarily only refers to a moderate depth of hardening. Large articles to be deeply hardened can only be worked by time, the effect being noted in practical working. Some articles frequently require packing and firing more than once.

When the boxes are opened, the usual thing is to dump the whole of the contents into water and then to extract the hardened articles when they are practically cold, when they should be almost glass-hard on the surface. In some cases running water is used, and various additions are made in other cases—solutions of salt, cyanide, prussiates, and other things being used; the chief apparent object being to increase the coldness of the water, the effects of the chemicals on the metal being nearly, if not quite, ignored. Some things, and particularly the cyanides of potassium or potassium and iron, appear to affect the iron and steel more than is generally thought, greatly increasing the hardness of a thin layer on the surface of the metal, and for this reason should always be used with some articles; but where tempering is to be done, their use is not necessary.

After the articles are cooled off they are dried and thoroughly brushed with wire brushes to leave them clean; and if to be tempered, the surfaces are brightened. Any fine grinding is done before tempering; but the final polish only after the whole of the fire work has been performed.

A Lightweight Accumulator.

That it is possible to greatly reduce the weight of the accumulator for ignition purposes despite the inherent defects in this respect of the materials entering into its make-up, has been amply demonstrated by the manufacture of an ignition set for use in connection with an aeroplane motor, by the Muller Porous Plate accumulator Co. Each cell has a capacity of 25 amperes at the standard voltage of 2.2, three being coupled in series and when placed in the 4½ by 5 by 6½ inch japanned metal case shown beside them in the accompanying illustration, the entire outfit only tips the scales at 12 pounds.



In addition to effecting a great reduction in the weight the makers claim that the improved form of plates employed not alone insure a much longer life, but also render the cells proof against the abuse to which the average ignition battery is subjected, without deterioration. The use of celluloid for containing cases as well as insulating separators makes the cells easy of inspection at all times and is a certain preventative of short circuiting. A special form of vent plug permits of the ready escape of gas without spraying the acid over the tops.

Cleveland Club's Year Book Out.

Under the title of the Ohio Automobile Annual, a neat little road book, club and garage list has just been issued for the use of members of the Cleveland Automobile Club. It contains in all, some eighty routes lying within the State, and mostly radiating from Cleveland, many of them being clarified by the use of sketch maps. In addition to which are included lists of the clubs, garages and principle hotels, together with the automobile law of the State, and the local enactments of the five principle cities. The volume is done in limp leather pocket size, and happily, is cut with round corners, which prevents the accumulation of tattered "dogs-ears."

A Good Bronze Alloy.

The high price of tin causes many brass founders to add antimony to some bronze mixtures in order to reduce their cost. Spelter has also been used, but this does not have a good effect upon the coloring. The following is a good mixture where stiffness and a good color are required: Copper, 88 per cent.; zinc, 5.5 per cent.; tin, 2.75 per cent.; lead, 2.25 per cent.; antimony, 1.5 per cent.

More "Make-up" Needed.

"Motor mouth" is the latest affliction attendant upon travelling in an automobile. According to its discoverer, the malady is confined to the fair sex and apart from the discomfort that is its unavoidable concommitant, its greatest drawback is said to lie in the fact that it destroys all inducement to osculation. The only preventative suggested is that usually advocated to keep away the ravages of rust—a liberal coating of grease, although both the matter of quality and scent are left to the user in this instance.

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The Week's Patents.

827,810. Gas-Engine. Peter Mohrdieck, San Francisco, Cal., assignor to Standard Gas Engine Company, San Francisco, Cal., a corporation. Filed Apr. 13, 1903. Serial No. 152,306.

Claim.—In a gas-engine, the combination with the cylinder and driving-piston, of an admission-valve, a lever for operating the same, an exhaust-valve, an arm for operating the said exhaust-valve, a shaft continuously driven by the engine-shaft, a cam on said shaft for operating the exhaust-valve arm, a supplemental cam on the said shaft for operating the exhaust-valve arm when the engine is started, an adjustable contact-roller on the exhaust-valve arm, and a spring-bar on the exhaust-valve operating arm for holding the contact-roller in position to be engaged by one or the other of the cams for operating the said arm, substantially as set forth.

827,836. System for Charging Storage-Cells. Asbury G. Wilson, Wilkinsburg, Pa. Filed Jan. 13, 1906. Serial No. 295,860.

Claim.—1. In combination, a charging-circuit, two independent sets of storage-cells, translating devices supplied from either set of storage-cells, switches for connecting either set of storage-cells with the translating devices and simultaneously disconnecting the other set from the translating devices, and another switch and circuits for connecting the charging-circuit with the disconnected set of storage-cells, through the said switches.

827,839. Air-Brake and Means to Start Automobiles. George W. Young, Glendale, Cal. Filed Jan. 23, 1906. Serial No. 297,456.

Claim.—1. A combined air-brake and vehicle-starter comprising a compression-cylinder and an air-chamber in the form of a dash-pot in communication with said cylinder in which air is temporarily compressed by a moving part of the machine in the act of braking previous to its admission into the compression-cylinder.

827,856. Ball-Bearing. Milo Harris and John F. Dearing, Jamestown, N. Y. Filed June 9, 1905. Serial No. 264,509.

Claim.—1. A roller-bearing ring consisting of a hardened-steel race-ring, and a housing of substantially uniform thickness for said race-ring having extensions beyond the edges of the race-ring.

827,904. Igniter for Explosive-Engines. John Boyle, Peabody, Mass. Filed Nov. 21, 1903. Serial No. 182,094.

Claim.—1. In an explosion-engine igniter, coöperating rigid sparking electrodes, one of which is mounted for movements into contact with and recession from the other and for rubbing movements bodily in opposite directions while in contact, and actuating means for imparting said movements to the movable electrode including an engine-operated member and an intermediate yielding device engaged therewith and with the movable electrode including an engine-operated member and an intermediate yielding device engaged therewith and with the movable electrode for retaining the electrodes in contact while the rubbing movements take place.

827,914. Electric Battery. Isidor Kitser, Philadelphia, Pa. Filed June 12, 1901. Serial No. 258,692.

Claim.—1. An electrode for electric cells, consisting of the conductor proper, said conductor provided with holes or spaces, and an active material contained in said holes or spaces, said active material consisting of platinized carbon.

827,926. Means for Inflating Rubber Tires. Alfonso G. Lavertine and James E. McNellan, Johannesburg, Transvaal. Filed Oct. 10, 1905. Serial No. 282,109.

Claim.—1. In means for inflating tires, a cartridge for holding compressed air or gas, said cartridge being constructed to provide a valve-chamber and with an annular projection at the bottom of said chamber, a valve located in said chamber for which valve the projection forms a stop, an annular recess in the valve-chamber and a resilient ring or washer in said recess on which the valve is seated, substantially as described.

827,927. Pneumatic Tire. Henry D. B. Lefferts, Orange, N. J. Filed Nov. 17, 1905. Serial No. 287,805.

Claim.—1. A pneumatic tire comprising an outer casing, a normally inflated main inner tube having an inwardly-projecting valve-stem, and a normally deflated divided supplemental reserve tube arranged without the main inner tube and having its ends disposed in abutting relation to the valve-stem, said supplemental reserve tube being of a greater diameter than the main tube to provide, when inflated, inflated holding-hooks extending about the said valve-stem.

827,930. Wheel for Road-Vehicles. Geo. Middleton, Putney, London, England. Filed Jan. 10, 1905. Serial No. 240,508.

Claim.—1. In a pneumatic hub for road-vehicles, a rim constructed with side flanges to restrict the lateral spreading of the inflatable tube, said rim being free to rotate upon the axle sleeve.

827,938. Rubber Wheel-Tire. Harry G. Osburn, Hoboken, N. J. Filed Aug. 17, 1900. Serial No. 27,139.

Claim.—1. In a wheel, the combination with a rim, comprising a felly having a metallic tire thereon, of a tire inclosing said rim said rim projecting into said tire and having its tread and sides cushioned thereby, and means for securing said tire to said rim.

827,968. Secondary Battery. William Gardiner, Chicago, Ill., assignor by mesne assignments, to Universal Electric Storage Battery Company, a corporation of Delaware. Filed Aug. 31, 1904. Serial No. 222,790.

Claim.—1. In an accumulator the combination with a metallic cell, of a plurality of separator-grips arranged on opposite sides thereof and each grooved centrally on its inner face to a point near its lower end, plates engaged in opposite separators out of contact with the cell and sheets of reticulated material engaged between said separators out of engagement with said plates and in engagement with the bottom and sides of the cell.

828,027. Clutch. Adolph F. Hansen, Gowrie, Iowa. Filed Nov. 18, 1905. Serial No. 288,006.

Claim.—1. In a clutch, a driving member, a driven member, a plurality of sets of gripping devices adapted to engage one of said members, a yieldable member connecting one of the gripping devices of each set, means for depressing the yieldable member thereby to actuate the gripping devices, and means for locking said gripping devices in operative position.

828,064. Means for Reversing and Controlling Internal-Combustion Engines. John W. Slater, Slatersville, R. I. Filed May 23, 1905. Serial No. 261,869.

Claim.—1. In an internal-combustion engine, a valve and a valve push-rod, a bipart actuator composed of two hinged members for said push-rod, a half-speed shaft having a pair of cams to oscillate said members, and means for subjecting the push-rod to the influence of either of said members, the oscillation of said members separately regulating the degree of lift of the valve and determining the direction of movement imparted to the crankshaft and cams.

828,116. Power-Transmitting Device. Otto Hoffman, Granite, Minn. Filed Jan. 2, 1906. Serial No. 294,148.

Claim.—1. The combination with a vehicle-axle having carrying-wheels, of a spoke or plate centrally pivoted on said axle, a sprocket-wheel loosely mounted on said axle and having a swiveled connection with the ends of said spoke, and a driving connection for said sprocket-wheel, substantially as described.

828,223. Detachable Tire-Rim. Henry G. Leisenring, Wayne, Nebr. Filed Apr. 20, 1906. Serial No. 312,876.

Claim.—1. An apparatus for fastening tires to rims of wheels, comprising a rim having one edge flanged and a longitudinal groove adjacent to the opposite edge, a flanged strip having a rib adapted to seat in said groove, said strip having laterally-projecting lugs, slots in the edge of the rim, one of said slots being elongated and having a contracted opening adapted to hold one of the lugs from moving laterally and fastening means for holding said strip to the rim, as set forth.

828,228. Carburetter. Albert W. Menns, and Walter K. Menns, Everett, Mass. Filed Oct. 26, 1904. Serial No. 230,061.

Claim.—In a carbureter, the combination with a carburetting-chamber having a plurality of openings in the wall thereof and provided with a hydrocarbon-inlet and an air-inlet nozzle having its mouth at one side of the mouth of said hydro-carbon inlet and adapted to eject a stream of air from the mouth of said nozzle across the mouth of said hydrocarbon-inlet, of a valve surrounding said nozzle having therein a plurality of openings adapted to register with the openings in the wall of said chamber and regulate the admission of air thereto, and means for moving said valve.

828,254. Tire. James H. Swain, Pittsburg, Pa., assignor by mesne assignments, to H. M. & S. Armored Tire Company Incorporated, Pittsburg, Pa., a corporation of Pennsylvania. Filed Aug. 14, 1905. Serial No. 274,123.

Claim.—1. A tire of the class described consisting of an inner air-tube, a fabric wrapping surrounding said tube, strengthening-strips arranged upon said fabric wrapping, resilient strips interposed between the edges of said strengthening-strips, fabric wrappings interposed between said strengthening-strips, fabric wrappings surrounding said strengthening-strips, and a surrounding outer tube, substantially as described.

828,269. Vehicle-Wheel. Charley R. Bohannon, Welsh, La. Original application filed Aug. 31, 1904. Serial No. 222,859. Divided and this application filed Apr. 21, 1905. Serial No. 256,734.

Claim.—1. In a wheel structure, the combination of a hub, spokes, a rim comprising a channel-iron composed of sections having

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the outer ends of the spokes passed therethrough, a tire received in the channel-iron sections, and means for securing the spokes to the channel-iron sections and preventing displacement of the tire therefrom.

828,274. Carburetter. Harry B. Cornish, Minneapolis, Minn. Filed Dec. 16, 1904. Serial No. 237,036.

Claim.—1. A carburetter comprising an inner and outer member vertically arranged and having a space between them and having depending conical lower ends, and a feed-passage leading to the cross space between said ends, means for regulating the cross-sectional area of said passage, and means for supplying oil and air under pressure to said passage and space, substantially as described.

828,332. Nut-Lock. Hugh McLaugtlin, Loami, Ill. Filed Dec. 16, 1905. Serial No. 292,067.

Claim.—The combination with a bolt having a threaded portion intersected by a longitudinally-extending groove disposed wholly within said threaded portion, said groove having a series of recesses in the bottom thereof spaced apart at regular intervals; of a nut mounted on the threaded portion of the bolt and extending across the groove, a key seated within the groove and of greater length than the distance between any two adjoining recesses, said key adapted to be bent to overlap the nut, and an extension at one end of the key, said key being adjustable longitudinally to seat the extension within any one of the recesses and lock the nut against rotation.

828,334. Carburetter. Albert Peterson, Cambridge, Ill. Filed Apr. 11, 1905. Serial No. 254,949.

Claim.—In a carburetter, the combination of superposed reservoir or generating tanks, a plate located within the generating-tank and spaced a short distance from the bottom thereof, hollow supports for said plate resting upon the bottom of the generating-tank and having a radial arrangement, a pipe passing centrally through the reservoir and generating tank and connecting with the center of said plate, a second pipe concentric with the first-mentioned pipe and communicating with the upper portion of the generating-tank and passing through the reservoir-tank, a feed-pipe extended through the reservoir-tank and passing into the generating-tank and having a nozzle at its lower end and a valve-casing above said nozzle and provided with a feed-opening above the bottom of the reservoir-tank, a valve located in the casing of the feed-pipe, a float-controlled lever having an upwardly-extended portion entering the nozzle of the feed-pipe coming in contact with the valve controlling the same, said lever having an engaging portion at its float end, and a pipe extending through the reservoir-tank and about in line with the engaging element of the float-controlled lever, the upper ends of the pipe and the said feed-pipe being adapted to be closed.

828,335. Dry-Battery Cell. Angelica E. Post, Boston, Mass. Filed May 17, 1905. Serial No. 260,763.

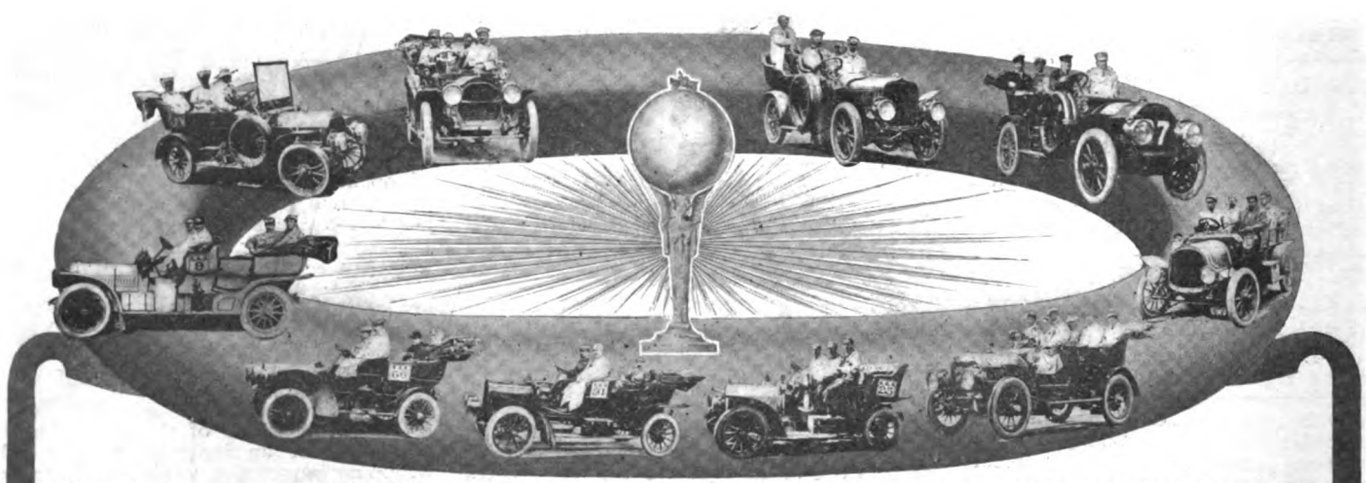
Claim.—1. As an article of manufacture, a cell, containing a central electrode, having all the active ingredients including a dry excitant mixed together and packed around and in contact with said central electrode, said ingredients being maintained in an absolutely dry condition as long as the cell is not being used, said cell containing dry absorbent means surrounding said ingredients in direct superficial contact therewith for absorbing from the latter extraneous moisture and maintaining said ingredients in their said normally dry condition.

828,337. Roller-Bearing. Alfred E. Putnam, Santa Barbara, Cal. Filed Nov. 21, 1905. Serial No. 288,479.

Claim.—1. In a roller-bearing, the combination of an inclosing casing, a divided roller-casing therein, the parts of said roller casing being cut away at their meeting-point to form an annular groove, a shaft or axle provided with a corresponding annular groove, primary rollers, provided with projections, located between said shaft or axle and said roller-casing, said projections entering into and contacting with the edges of said grooves, spacing-rollers lying between and just within the narrowest space separating said primary rollers, and means separate from said shaft and axle for pressing out said spacing-rollers into contact with said primary rollers, substantially as described.

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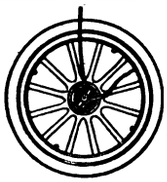
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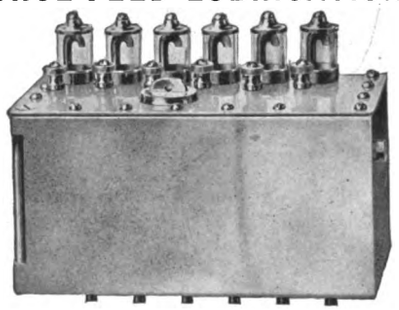
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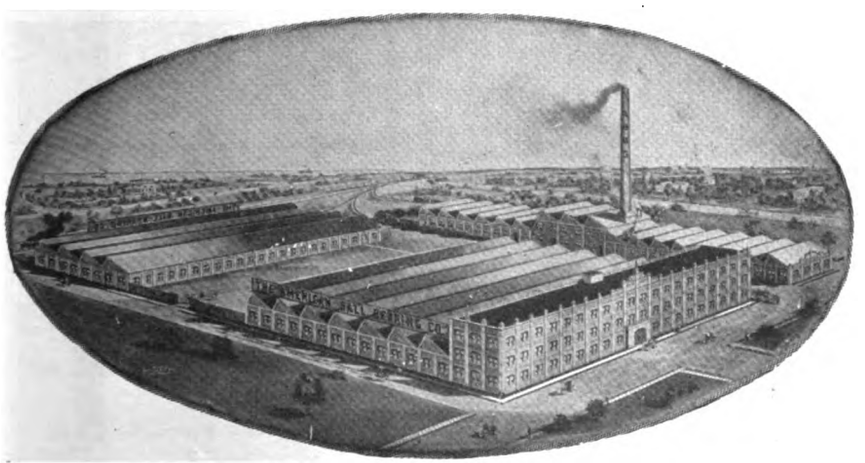
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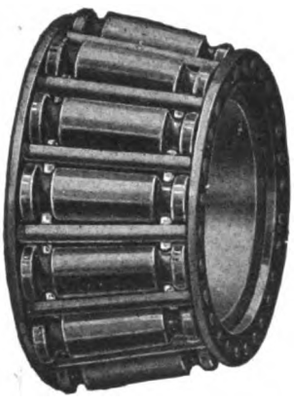
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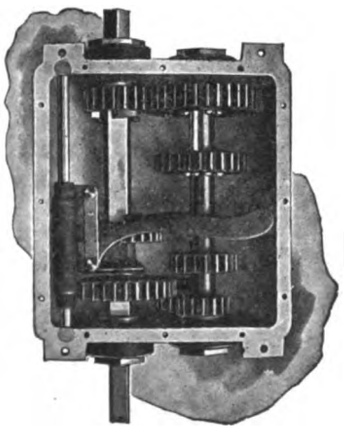
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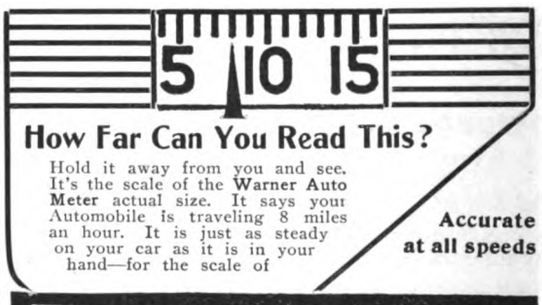
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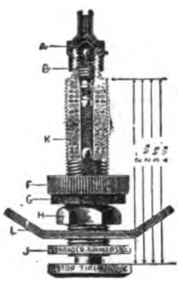
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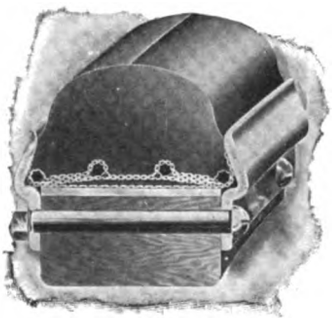
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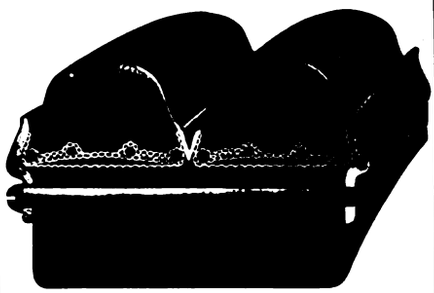


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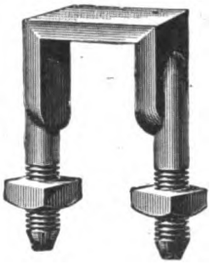
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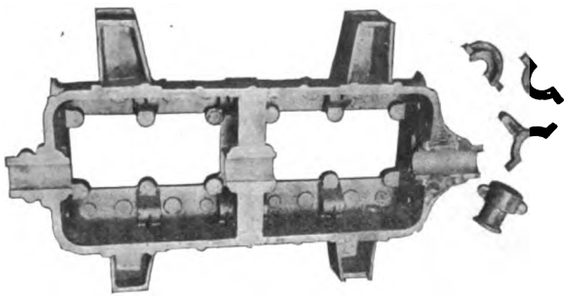
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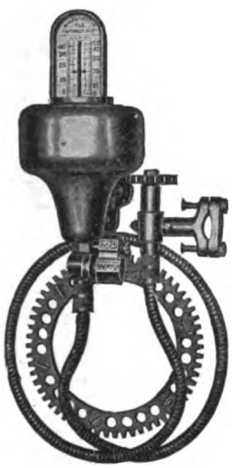
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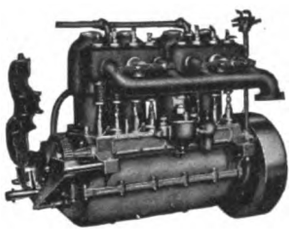
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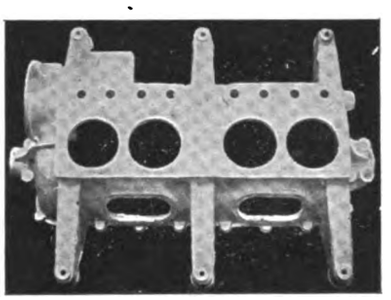
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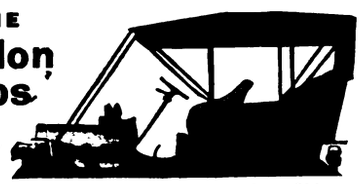
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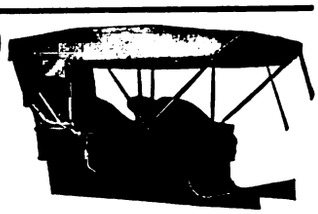
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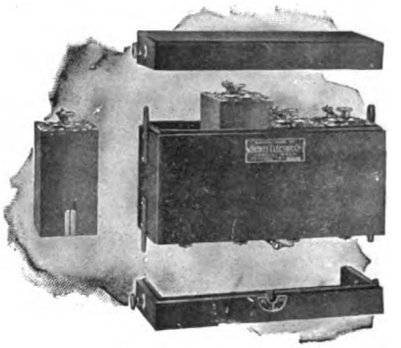
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Heinze Motor Car Coils

WILL INCREASE THE POWER OF YOUR ENGINE FROM 10 TO 15%.

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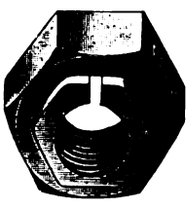
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Columbia Lock Nuts will not shake off American made cars, neither will they shake off cars of foreign make. We are prepared to furnish Columbia Lock Nuts with Metric thread for French cars and Whitworth threads for English cars. Nuts that will not shake loose are an absolute necessity. More trouble and loss of life result from nuts working loose than from any other known cause.

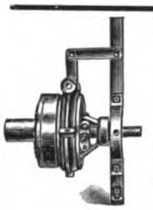
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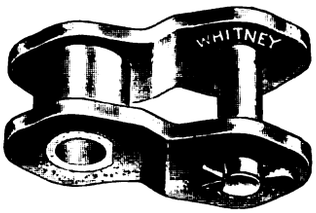
HARRISON NEW JERSEY

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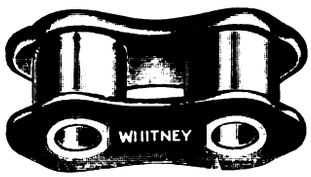
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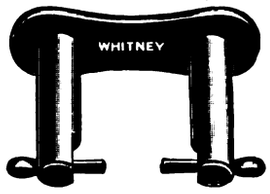
Connecting Link



OFFSET LINK



Assembled Center Block

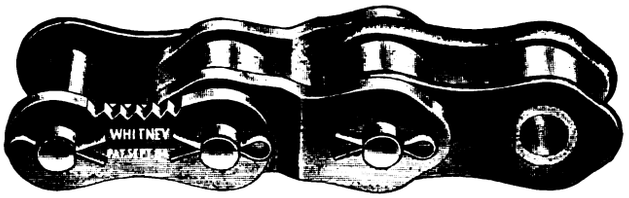


Side Link with Rivets Assembled



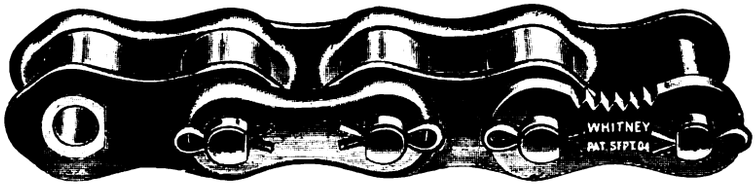
Side Link Plain

"Whitney" Offset Links for use when it is required to shorten or lengthen a chain only one Link.



Against claims made by Competitors, we submit the following list of Motor Car Manufacturers using "WHITNEY" ROLLER CHAINS and STANDARDS. Is it not time for everyone to admit that "WHITNEY" STANDARDS for ROLLER CHAIN dimensions are now the American Standards?

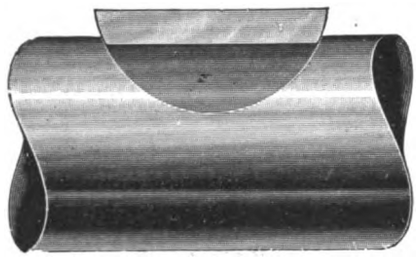
"ADAMS-FARWELL" "ADAMS VEHICLE CO." "AMERICAN MOTOR TRUCK" "AUTO-CAR EQUIPMENT" "BAKER" "BERKSHIRE" "BIDDLE-MURRAY" "CADILLAC" "COLUMBIA" "CHAMPION (McCrea)" "CROWN" "CRAWFORD" "COLUMBUS BUGGY CO." "ELWELL-PARKER" "FORD" "FRANKLIN" "GAETH" "GALE" "GROUT" "HEWITT" "THE HOLMES" "IROQUOIS IRON WORKS" "KNOX" "LAMBERT" "LEAR" "MATHESON" "MACK BROTHERS" "MITCHELL" "MOLINE" "NEW YORK MOTOR TRUCK" "OLDS" "PACKARD" "RAMBLER" "RAPID" "REO" "SIMPLICITY" "STEARNS" "THOMAS" "TOURIST" "WAYNE" "WESTERN MOTOR TRUCK" etc.



Detachable Type Patented









The Woodruff Patent System of Keying has been adopted by the Leading Manufacturers of Motor Cars, Machinery, etc. It is more mechanical, more efficient and also a great labor saving invention.

We carry over 50 sizes of KEYS and CUTTERS in stock for immediate delivery.

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Hartford, Conn.

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DON'T FORGET THIS

You may never have occasion to use the reserve strength that is put into

MORGAN & WRIGHT TIRES

(we hope you won't) but it's there if you do

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded

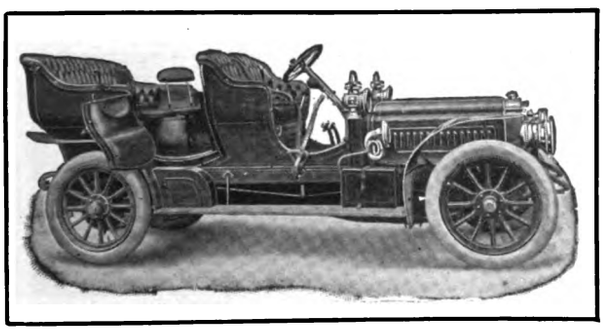
CLINCHER——DUNLOP
BAILEY "WON'T SLIP" TREAD

MORGAN & WRIGHT, CHICAGO

NEW YORK SYRACUSE BOSTON PHILADELPHIA CLEVELAND DAYTON DETROIT MINNEAPOLIS ATLANTA ST. LOUIS KANSAS CITY DENVER LOS ANGELES SAN FRANCISCO PORTLAND

The Magnificent **THOMAS FLYER**

For 1907



¶ News of it soon that will arouse the eager enthusiam of every Thomas follower who has watched the wonderful work the present season.

¶ New triumphs in store for Thomas owners—a car that will sustain and surpass all the highest and best Thomas traditions.

Watch for the preliminary 1907 announcements

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Members Association of Licensed Automobile Manufacturers.

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Fisk Rubber Co.
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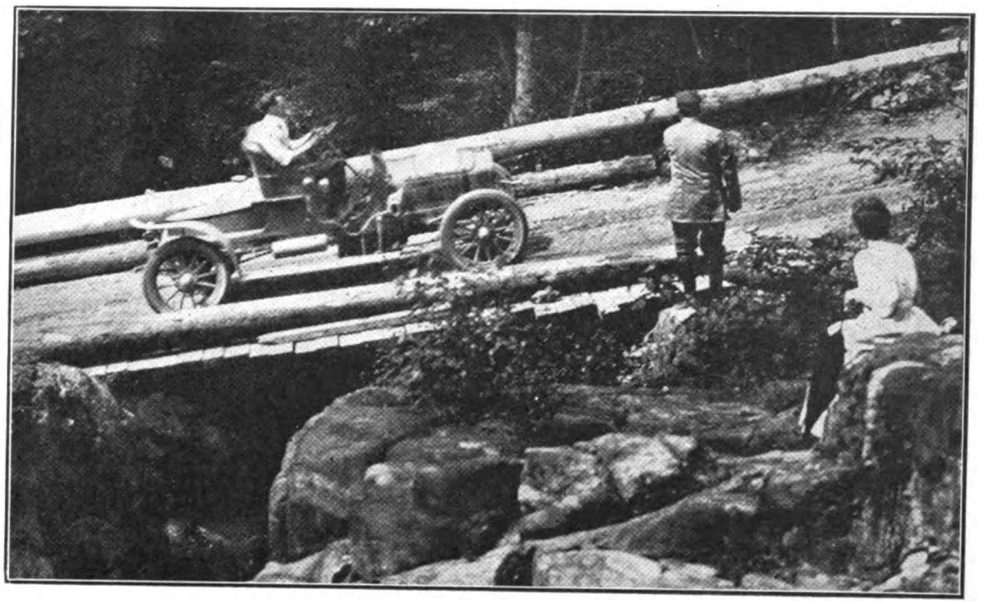
G & J TIRE CO.

Indianapolis, Ind.

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PREMIER

WINS AT CRAWFORD NOTCH



The above photograph illustrates the stock Premier car, 24 H. P., winning the Crawford Notch Hill Climb at Bretton Woods, August 3.

This car has been in daily service all season, and immediately preceeding the Hill Climb was driven over 700 miles over the road without an adjustment, and defeated all cars in its class.

The superb springs upon which the car is regularly mounted permits of great ease in riding, and protects the mechanism against such injury as usually accrues to cars with ordinary spring suspension, when driving over rough roads.



Air Cooled

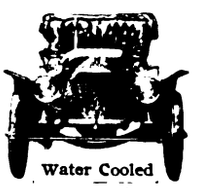
Handsome, stylish, fast, easily controlled, wonderfully economical in point of maintenance, with tire wear reduced to a minimum.

No car built in America offers the value to be obtained in the Premier, The Quality Car.

Send for catalogue S and other literature.

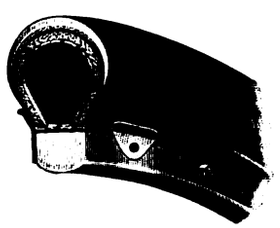
PREMIER MOTOR MFG. COMPANY, Indianapolis, Ind., U. S. A.

Members American Motor Car Manufacturers' Association.



Water Cooled

Two Timely Hints from "Firestone"



FIRESTONE Mechanically Fastened Pneumatic.

We were not members of the late Pneumatic Tire Combine and the quality of our product will in no way suffer by reason of its dissolution.

We have become the largest manufacturers of the Solid Rubber Tires in the United States because we have practiced the "square deal" and are furnishing the most practical Tire.



Dual Motor Tire, duplicating any width of single and adapted to the heaviest work ever demanded of a tire.

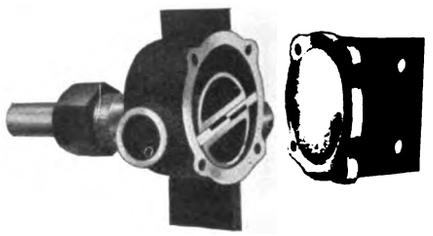
FIRESTONE TIRE & RUBBER CO., Akron, Ohio

BRANCHES

New York, West 58th St. cor. Broadway.
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HAYNES COOLING SYSTEM

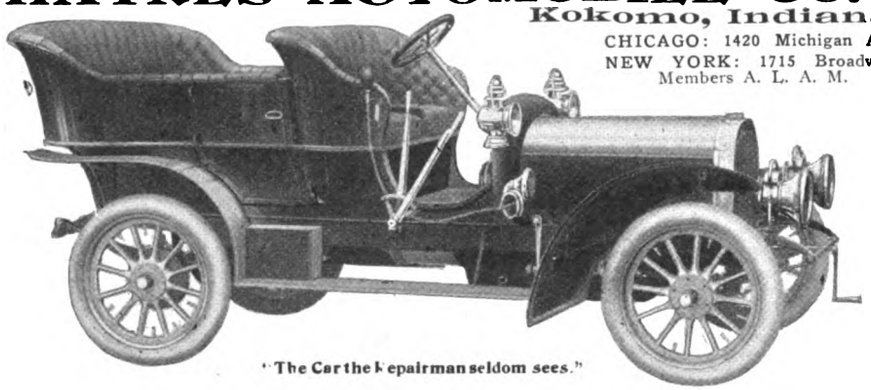


UNUSUAL attention has been given to the cooling of Models "O" and "R"—the 1906 Haynes cars—and unusual results have been obtained. On a 5000 mile journey not once did either of these engines get hot enough to cause a single explosion after the spark was shut off.

Two fans, one back of radiator, the other in fly wheel, sweep the air through the radiator and over the engine, and the very large volume of water around the valves also greatly assists in cooling. The water pump is so simply and strongly constructed that it cannot get out of order. In spite of severe freezing weather on the January trip of Model "R" from New York to Chicago—over 1100 miles—there was no trouble whatever with cooling system, nor was any "anti-freezing compound" used.

The Haynes is the **highest-powered shaft-driven Car built**. In requesting catalogue, for prompt attention address Desk D 29.

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CHICAGO: 1420 Michigan Ave
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Members A. L. A. M.



"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5¼x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,500 f. o. b. Kokomo. Full equipment.

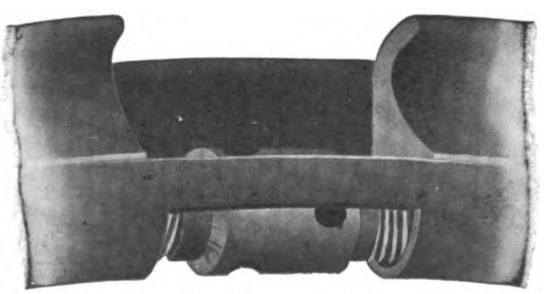
Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs 4¼x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.

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Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

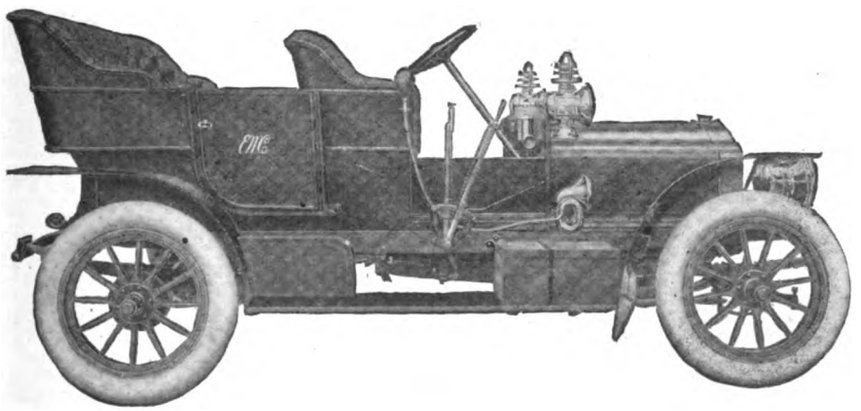
Sele Makers ef the HARTFORD UNIVERSAL RIM for DUNLOP AND CLINCHER TIRES



MIDGLEY MANUFACTURING COMPANY, - - Columbus, Ohio.

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Not a Repair— Not a Replacement



Do You Understand That?

Not a Repair Not a Replacement—

Not Even an Adjustment

So much that is misleading has been written and said about the Glidden Tour that it is almost discouraging, any attempt to tell the facts. Nevertheless, we deem it a duty we owe to the public and to ourselves to give you an unvarnished statement of the absolutely unique and superb achievement of

The Two Cycle Elmore

As Admiral Schley said on a certain celebrated occasion: "There's glory enough for all."

Any car that came through the Glidden Tour deserves unstinted praise and credit.

But the public is entitled to know which particular car made the really remarkable showing.

Studying the situation calmly, coldly and critically we don't believe that that is hard to demonstrate.

It is admitted, we suppose, that even among the perfect scores there was not a car that came through without any repairs, replacements or adjustments.

It is admitted—must be admitted—that none of these cars came through without frequent or infrequent tinkering. It is a matter of common knowledge that some cars made such wholesale changes as the substitution of entire new axles.

It is admitted that none of the "Perfect" cars were able to take the worst hills without great effort; that few—very few—of them were even able to do so on the low gear. These facts are all matters of history.

Everybody knows them to be true.

Now they are not true—not one of them—of the two cycle ELMORE.

It is absolutely true that there was not a single repair or replacement made on the ELMORE—not a single repair or replacement—big, little or indifferent, not even the removal of a spark plug.

It is absolutely true that there was not a particle of tinkering on the ELMORE from Buffalo to Bretton Woods.

It is absolutely true that not a single part or part of a part was substituted on the ELMORE.

It is absolutely true that not a single hill was encountered that the ELMORE did not take on the low speed, without effort and with absolute ease.

It is absolutely true that not a single hill was climbed which did not find the ELMORE as fresh at the top as at the bottom.

It is absolutely true that this remarkable showing held good clear from Clyde to Buffalo, Buffalo to Bretton Woods to Boston, New York and back to Clyde—a distance of more than 2,500 miles.

Send for the little book which explains why the ELMORE made such a magnificent showing.

The Elmore Mfg. Co., 1104 Amanda St., Clyde, Ohio

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THE MARMON

"A Mechanical Masterpiece"



PERFECT SCORE-GLIDDEN TOUR

The Best 1907 Agency In Your Territory

Is going to the good man who gets busy right now, arranging to supply the demand for Marmon Cars.

Marmon Cars have scores of talking points, every one of which proved its high value in the Glidden Tour.

In competition with the highest priced cars of this country, the Marmon air-cooled motor proved a revelation, an eye-opener to the skeptics and knockers. It beat them all at their own game. Our system of individual cooling of cylinders has proven its superiority.

The Marmon is the easiest riding car in the world, without any exceptions. It is easily proven on any rough road.

Built entirely in our factory and backed by a guaranty respected the world over for fifty years.

If you want a really good thing, let's get busy!

Nordyke & Marmon Co.

(Established 1851) **Indianapolis, Ind.**

Members American Motor Car Manufacturers' Association.

The Invincible Chrome Nickel Steel

POPE-TOLEDO

1907 **1907**

THE 1907 POPE-TOLEDO will be a sensation and a surprise to all Motordom. No one knows better than the man who drives another car that the Pope-Toledo is the acknowledged car of power, speed and endurance; that the man who owns a Pope-Toledo generally rides with a little more comfort, a little faster, and with less adjusting and at less upkeep expense. Pope-Toledo cars have led in power, speed, style and workmanship.

Our Type XII has more than held the matchless and unparalleled record of our cars which preceded it, and has proven itself entirely free from all the weaknesses and troubles that have ever beset the high-powered car. It is without question the leading car of America.

But notwithstanding the complete success and supremacy of Pope-Toledo cars in the past, new principles, new machinery, our long and successful experience, and above all, Chrome Nickel Steel, the best in the world, has wrought a complete revolution in our 1907 product.

Finally, the 1907 car itself, which has been running since June 15th, enables us to say that the Pope-Toledo for 1907 marks an epoch in the history of the industry, not only in America, but in the world. We can say further that not a bolt, nut, screw or any one of many hundred parts is anything like those in any car we have produced. The engine, transmission, bearings, frame, wheels, axles, brakes, control, design—everything is new and better. See the 1907 Pope-Toledo for the ONE car that possesses ALL the latest and best in automobile construction.

Send for advance literature.

POPE MOTOR CAR CO.

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JONES SPEEDOMETER,
132 West 32d Street, New York
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THE BATTERY WITH-ER-BEE



FOR LIGHTING FOR IGNITION

Is Your Gas Engine Showing Up Its Full Horse Power?

Don't blame the engine—yet. See if your spark is working right—or perhaps it isn't powerful enough. To get full power, all the gas in the cylinder must be ignited. A **Witherbee Igniter**—which gives a hot snappy spark—ignites all the gas and consequently increases the horse power. There are a lot of points about **Witherbee Batteries** better and different from others. Write for Booklet.

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Notice to Builders of Experimental Cars.

We have on hand a few odds and ends of different size wheels, rims of different kinds, several types of front axles, including I-Beam Tubular, and solid centers, fitted with different kinds of steering-knuckles, also several shaft drive rear axles. All the above—for cars weighing from 1,500 to 2,800 empty.

This material is all in first-class shape and is the result of manufacturers changing their specifications with us, and all will be sold at bargain prices.

Write at once, as they will not last long.

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NORTHERN
TWO-CYLINDER
TOURING-RUNABOUT

Embodies all that any automobile ought to, and much more than most automobiles do.

NORTHERN MOTOR CAR CO.
DETROIT, MICH.
Member A. L. A. M.

"Prest-O-Lite"

s condensed, filtered Acetylene Gas stored in interchangeable tanks. A little gauge tells just how many hours of light you have on hand at any hour. A charged tank can be substituted for an exhausted one in five minutes at conveniently located supply stations and garages everywhere.

You simply turn on the gas—Presto—and apply the match—Light. Prest-O-Lite is the one and only

No-Trouble Light for Automobiles

You *never* have to buy a new Prest-O-Lite apparatus, because every time you change tanks you get a perfect-working, good-as-new outfit.

We will arrange a special test for any Automobile Owner to prove that we have a better, stronger, steadier light for less money and without *any* of the inconveniences that attend the use of *any* other system.

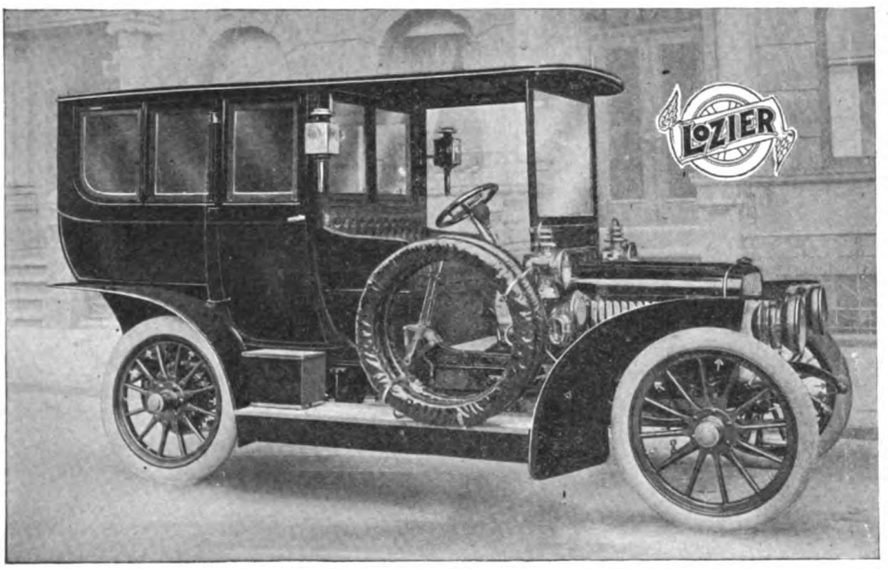
Unless we prove this to be a fact, it doesn't cost you a penny.

Write us at once, say "show-me," and that we may send you our book.

THE PREST-O-LITE CO., Dept. 174, INDIANAPOLIS, IND.

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INDICATIONS



point to an unprecedented demand this Fall for the

LIMOUSINE

type of Motor Car, and the supply is likely to prove inadequate.

Be prudent, therefore, and order now for early Fall delivery. ***Time is precious.***

The new ***LOZIER*** 40 H. P. designs are the same as the new Paris Models, which are booked to appear in December, ***but LOZIER deliveries begin sixty days earlier***—in October.

ORDER NOW AND SECURE PROMPT DELIVERY

THE LOZIER MOTOR COMPANY

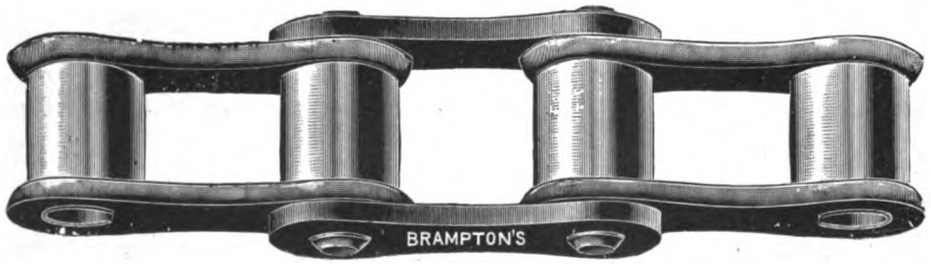
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At this stage of automobile development, the power transmission by chain is most popular.
Properly cut sprockets, and the best and strongest chain in the world.

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Which is made of self-hardening steel with large spun rivets, and all parts polished, so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

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They wouldn't last long, would they?

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When motor trucks were put in service, rubber tire makers figured from what they had (solid tires for carriages) to what they wanted (satisfactory motor truck tires).

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It is scientific—correct—built for the work to be done. It is different—and successful.

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Removes that ever-present terror of Punctures. You or anyone can remove a tire and put it back in 60 seconds by the watch

No Tools but the Hands

Come to the Factory or spend a few minutes at any of the following Branch Stores, and see how easy it is done by doing it yourself

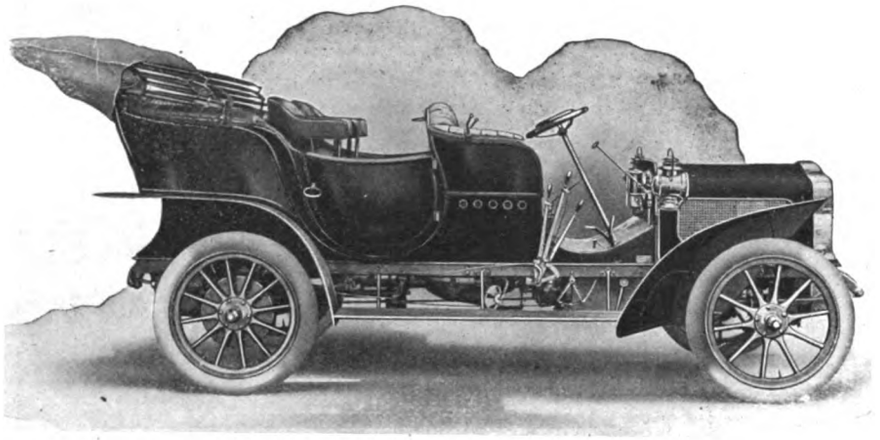
Boston, 261 Dartmouth St,
New York, cor. Sixty-fourth St. and Broadway.
Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
Buffalo, 719 Main St.
Denver, 220 Sixteenth St.
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The Incomparable WHITE

THE CAR FOR SERVICE



NEW MODELS OF THE WHITE STEAM CAR

We will shortly offer a new car of 30 steam horse-power which will be larger, roomier, stronger and far more speedy than any which we have previously made. In its construction it will follow the general lines of the well-known White system, but with numerous important improvements suggested by the study and experience of the year. The various elements of the power plant—engine, generator, condenser, etc.—will be of increased dimensions and every part of the car will be brought up to a new standard of strength, more than proportionate to the increase in power. This car, to be known as the Model "G," will be fitted with two distinct styles of body; a Pullman body, seating seven (illustrated above) and a touring body seating five and having most ample provisions for carrying baggage.

We will also offer a smaller car to be known as the Model "H," which will closely resemble the present highly successful and popular Model "F," although the new car will have a somewhat shorter wheel-base. In the Model "H," which will be conservatively rated at 20 steam horse-power, will be incorporated a number of the improvements which will be found in our Model "G."

A Circular descriptive of the New Models will be mailed on request.

WHITE SEWING MACHINE COMPANY
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Radiator Talks

BY FRANK BRISCOE

No. 4. How to Buy Radiators.

It looks easy. It isn't. An inefficient radiator will cause more different kinds of motor jim-jams in one minute than an expert can explain in a year. A badly mounted radiator will leak.

Many manufacturers think a radiator is a radiator and that is all there is to it. They accept the salesman's word that "Ours is the best." Perhaps they tell the radiator man a few points about their car, and in an indefinite way put the responsibility up to him without giving him a fair opportunity to even satisfy himself. He, in his anxiety to get the order signed, may take a chance, relying on the half expressed approval. Either put the whole responsibility on him or else take it on yourself.

We know considerable about radiators of all kinds but don't know as much about motors as their designers do. Don't say a radiator is bad simply because you don't get it big enough or because you connect it wrong.

The first thing to do is to give the radiator people full data about your motor,—bore, stroke, compression, power at given speed, location and size of openings, general type of car, and preference as to radiator appearance. Then get samples made. Get the radiators themselves tested. Then put them on the car. Run the motor with the car standing still. If in warm weather, say 75°, without using fan, it takes 25 minutes to boil the water, the radiator will probably be all right. But test it thoroughly. On a high gear it should run forever.

Be sure it is connected properly. **Use big connections.** Avoid steam and air pockets. Use a positive pump on high powered cars. Expect the cooler to leak of you tie it rigidly to shifting points. Keep the exhaust pipe away from the cold water.

Many radiators are larger than necessary. That means useless expense and waste. Some are too small. That means Hades generally. A proper fit is eventually a matter of intelligent test. Get over the idea that this can be left until the last minute. It takes time and expense, but pays to do it right. Get your efficiency first, size and design details afterwards. In final design avoid, if possible, working to thirty- seconds of an inch or fractional degree angles.

Finally, to sum it up, work with us, and let us work with you. We can meet any reasonable problem of efficiency, price or appearance if it is put up to us right.

BRISCOE MFG CO.

Detroit, Mich. **Newark, N. J.**

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Oval Raised
Tread Tire

The Most Serviceable Tire in the World

BECAUSE

SCIENTIFICALLY MADE

Write for our booklet

"PROPER TIRE CONSTRUCTION"

Which contains valuable information for the user of motor tires.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

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The "Maxwell"
A CAR OF MANY VICTORIES

The Deming Trophy in the Glidden Tour

WON by the MAXWELL 4-CYLINDER with a PERFECT SCORE

86 CARS STARTED
Of which four were
MAXWELLS
32 CARS FINISHED
With perfect scores
OF WHICH FOUR WERE
MAXWELLS

Chicago Reliability Run

Los Angeles EL PISMO ENDURANCE CONTEST
Largest contest ever held in America

106 CARS STARTED
HIGHEST HONORS AWARDED the
MAXWELL

OF MORE IMPORTANCE THAN THESE PUBLIC VICTORIES

is the fact that among the thousands who have bought Maxwells in the last two years there is unanimous satisfaction.

In contentment as in contest Maxwells excel

20-H. P. Touring Car, **$1,450** 10-H. P. Tourabout, **$780**

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The Oil That Graphitizes



LOW Fire Test Viscosity Cold Test

HIGH Quality

Carbonizes Perfectly

Different from other oils but

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TWO GRADES—LIGHT AND MEDIUM HEAVY
YOU NAME THE CAR—WE'LL NAME THE GRADE

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STA-RITE "STAYS RIGHT THE LONGEST"

Stay-Rite Plugs **Stay Right Longer** than all others. Because their **double** porcelains do not break. Air space does not allow short circuiting. Short, protected point will not cause pounding. Mica plugs do not loosen and cannot be broken. Secure list of 150 cars and right size plugs, and save bother. 47 sizes.
Spark Coils, etc.

The R. E. Hardy Co. 86 Watts Street New York City

116 Lake Street, Chicago, Ill.
E. J. DAY & CO., Oakland, Calif.

Automobile Tour.

ISLAND OF JAMAICA, W. I.

Leaving Boston, Oct. 31st. Returning, due to arrive Nov. 26th, giving 15 days of the motoring over beautiful roads and through the most fascinating country in the world.

One of the "Admiral" steamships of the United Fruit Company has been reserved exclusively for the party and their cars.

For further information and booking, address

CHESTER I. CAMPBELL,
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A Big Victory for the Auto-Meter

The Clean Score of the Auto-Meter in the Glidden Tour gives Positive, Practical Proof of Its Superiority.

The Glidden Tour, just completed, covering 1100 miles of the hardest, roughest kind of riding, gave the most severe practical test to which a Speed-Indicator could be subjected.

Of the 62 contesting cars in this tour, 38—or nearly two-thirds—were equipped with

The Warner Auto-Meter



and of the 13 cars finishing with a perfect score, TEN—or nearly five-sixths—had the Auto-Meter on their dashboards.

We have claimed, and have plainly shown the reasons why the Auto-Meter is the only Speed and Distance Indicator which could and would stand up, and be unvaryingly accurate under all conditions of use.

Here you have the most convincing kind of PROOF

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FREE to Automobile Owners: We have published a book called "Auto-Pointers," which is designed to help a man know his car. It tells how to keep out of trouble or how to find it in a hurry. If you own a car, it's Free. Send 4c to cover postage.

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CARRY A

GUARANTEE

that absolutely insures the automobilist of at least

5,000 MILES RIDING

Write to-day for a copy of this Guarantee. It will solve your tire problem.

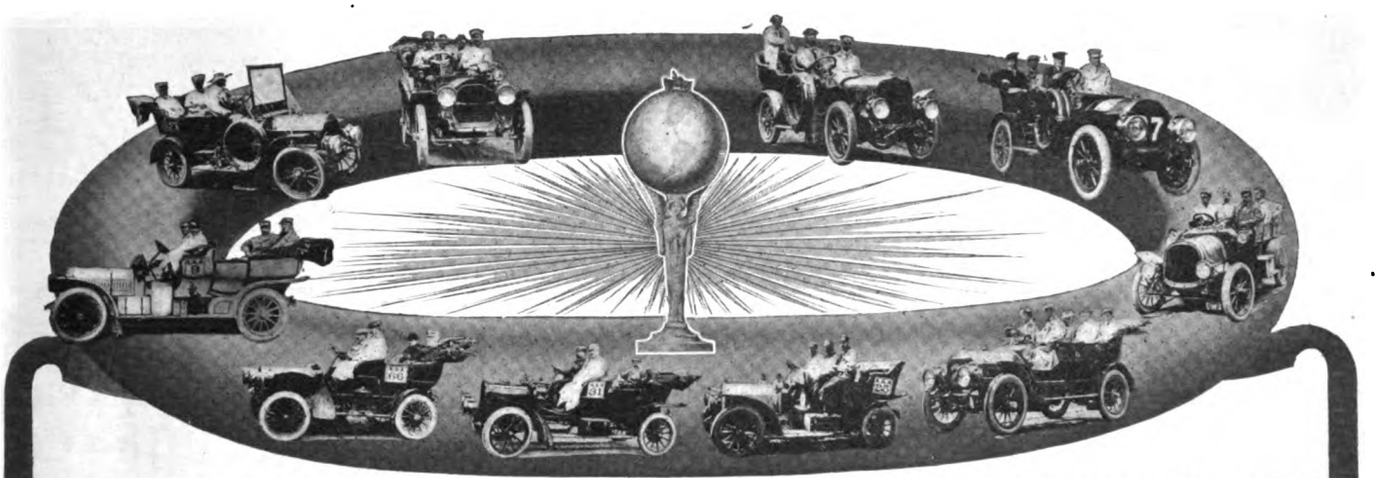
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AJAX STANDARD RUBBER COMPANY

Factory and General Offices: 420-430 East 106th Street, New York City.

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GLIDDEN 66⅔% GOODRICH



Records are made AT THE END of a contest and the only per cent. mark that counts is the one that shows final achievement.

In the contest for the Glidden Trophy 13 cars finished with a clean score, 9 of which were equipped with Goodrich Tires.

In the contest for the Deming Trophy 2 cars finished with a clean score, one of which, White Steamer, driven by Mr. Augustus Post, was equipped with Goodrich Tires.

TOTAL { 15 cars showed a clean score.
10 or 66⅔ per cent equipped with Goodrich Tires.
5 or 33⅓ per cent divided between all other makes.

Of the 10 clean score cars showing Goodrich Tire equipment, 6 used Goodrich Quick Detachable Construction.

THE B. F. GOODRICH COMPANY, = = = Akron, Ohio

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

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DETROIT—80 E. Congress St.
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Locomobile

Wins Endurance Run of the Albany, N. Y., Automobile Club

Joseph B. Taylor, driving his 30-35 H.P. "Locomobile," won the silver cup donated by Col. A. J. McClure. Over 540 miles through New England without a stop or adjustment.

Also W. L. L. Peltz, driving a 30-35 H.P. "Locomobile," secured honorable mention. 19 competing cars. Two of them "Locomobiles."

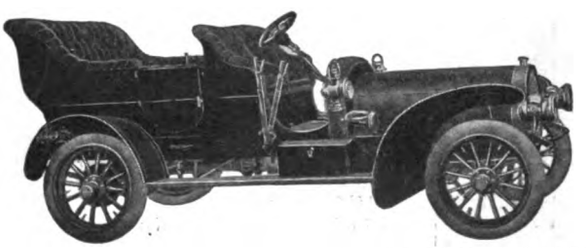
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The *Locomobile* Co. of America
BRIDGEPORT, CONN.

Members Association Licensed Automobile Manufacturers.

National

WORLD'S RECORDS
FOR
1000 Miles and 1094 3/16 Miles in 24 Hours
Made Nov. 17th, 1905
STILL STANDS UNEQUALLED.



4 Cyl. 35-40 H. P. $3000. 6 Cyl. 50-60 H. P. $4000.

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WATCH FOR THE ROUND RADIATOR

• *Member American Motor Car Manufacturers' Association, N. Y.* •

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Are completely illustrated and described in THREE CATALOGUES devoted respectively to GASOLINE CARS (18 H. P., 24-28 H. P., 40-45 H. P.,) ELECTRIC CARRIAGES (Runabouts, Victoria-Phaetons, Surreys, Broughams, Hansoms, Landaulets, Busses) and ELECTRIC COMMERCIAL VEHICLES (delivery wagons and trucks, ranging in load capacity from 1,000 to 10,000 pounds).

Mailed on request; and also special illustrated pamphlets, "Fashioning A Crankshaft," "Columbia Chrome-nickel Steel," "Transmission, Etc.," "Consistent Differences."

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Members Association of Licensed Automobile Manufacturers.

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WE GUARANTEE ALL WORK THAT WE UNDERTAKE



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TRUFFAULT-HARTFORD
SHOCK ABSORBER
TRADE MARK
THE PIONEER AND THE BEST



Postal Brings Booklet.

90% of all cars equipped with Shock Absorbers in the Glidden Tour used Truffault-Hartfords.

These were the cars that had the least trouble with tires, springs and axles. **What does this mean to you?**

Immediate deliveries—Suspensions applied at 212 W. 88th St., N. Y.

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You are not safe from explosion unless you use

THE SNELL HYDRAULIC SYSTEM

Approved by the Board of Fire Underwriters, the Board of Health and the Fire Department.

Gasolene cannot explode unless mixed with air.

The SAFETY TANK is the only tank which is always filled with liquid; gasolene or water or gasolene and water (they can not mix). Any other tank admits air as the gasolene is drawn off and immediately becomes an acute source of great danger. The air also evaporates the most vital part of the gasolene and leaves the remnant with less power units. In the SAFETY TANK these dangers can not happen because no air can get in as the tank is always full of liquid. The Board of Fire Underwriters recognizing the absolute safety of our tank give the users of it a minimum rate of fire insurance. Write us for free descriptive booklet. It will save money for you.



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MICHELIN

Michelin Tires cost more at first. That is why they are cheapest in the end. That's the end you are interested in. We are interested in the other end and we can't afford to turn out a poor tire.

The lesser cost of "Michelin Miles" is one of the things that make them different than any others.

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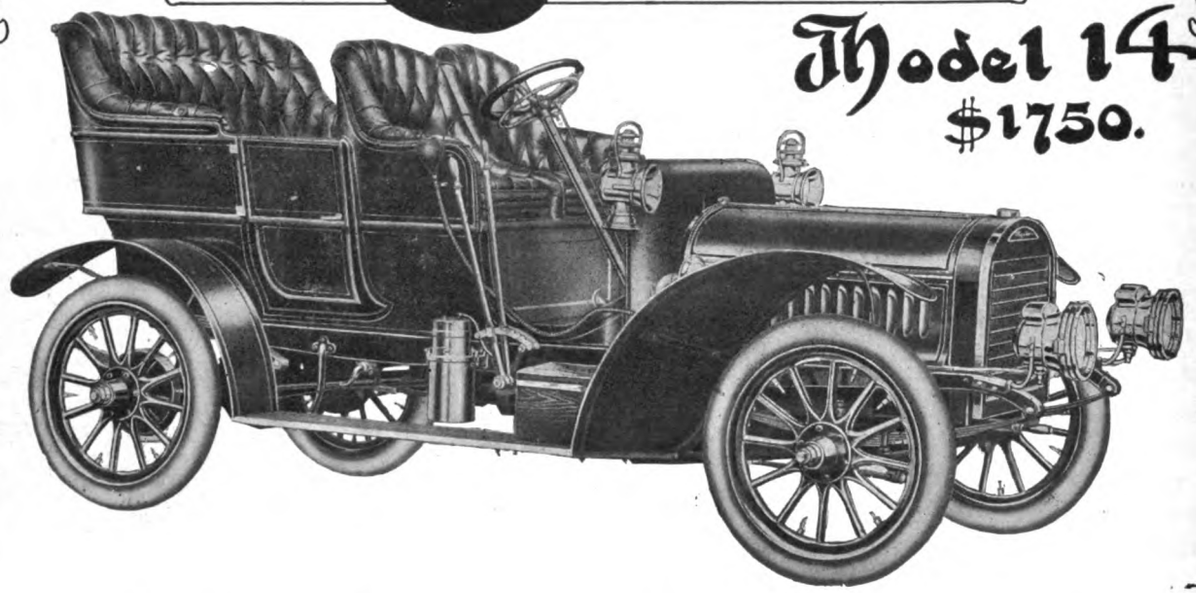
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Rambler

Model 14
$1750.



A medium weight touring car, strictly modern in design, equipment and appointments.

The logical result of years of study and development in the direction of simplicity in design and structural economy.

The power plant comprises a four-cylinder vertical motor with sliding gear transmission and shaft drive.

The accessories, such as carburetter, igniting, lubricating and cooling systems, are all the latest and most approved types.

Only the concentrated efforts of a large and perfectly equipped organization render possible the production of such a car at such a price.

Not only is the first cost attractive, but the structural simplicity assures the minimum expense of care and upkeep.

Your most critical inspection is invited and our catalog, giving full details, is at your service.

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THE MOTOR WORLD.

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, August 30, 1906. No. 13

NATIONAL SANCTION ASSURED

Official Seal of Approval from N. A. A. M. for Palace Show Forthcoming.

With the decision of the Automobile Club of America to hold a show this year in conjunction with the American Motor Car Manufacturers' Association, which was signalized by the leasing of the Grand Central Palace for the week of December 1st to 8th a short time ago, as already detailed in the Motor World, there arose a situation similar to that which existed in connection with the show held under the same auspices in the Sixty-ninth Regiment Armory last winter. Unless this popularly named "independent" show received the sanction of the National Association of Automobile Manufacturers, all who participated in it would be excluded from any of the shows held under the auspices or sanction of the latter body. Last year this meant practically every show outside of New York and had a sanction not been granted then, all who staged cars in the Sixty-ninth Regiment Armory would have been precluded from exhibiting anywhere else. But since the National Association's decision not to exercise any control over local shows, it is now confined to Chicago.

However, as the Windy City show is second in importance only to the opening event of the season in this city, any hitch in the arrangements would be apt to seriously inconvenience some of the firms which make a practice of showing their new models on an equally elaborate scale in both places. Taking the action of the national body last winter as a precedent in sanctioning the independent show without question, these makers have not been giving themselves any concern over the matter, and while it has not been officially announced as yet, it is generally understood from private sources that the granting of the sanction will only be a formality and that the official seal of regularity will be placed on the show to be held in the Grand Central Palace. It is understood that assurances to this effect have already been given to some of the members of the association. This will eliminate any chance of friction over the matter of participating in the Chicago Show and in accordance with the resolution of the association made last spring not to sanction any local shows, or in other words not to burden its members with the task of atending to this at a time when they are trying to turn out cars, the matter of showing in other cities will be left to the branch houses and the agents.

M. & A. M. to Show Together.

That the Motor and Accessory Manufacturers' Association will exhibit in a body at the independent or "club" show at Grand Central Palace, now seems certain. It is known that on Tuesday of this week President D. J. Post quietly dropped in the city and when he left he carried with him the option on at least 10,000 square feet of floor space in the balcony and in the rooms surrounding it. This space, as was the case last year, will, of course, be alloted by the association among its members, the ranks of which, by the way, are not likely to be largely increased in the near future, it being intimated that the association feeling that now it has numbered among it practically all the important concerns of standing in the parts and accessories business, all further applications should be subjected to the closest kind of scrutiny.

Incidentally, profiting by the experience of past years, plans have been already consummated that make membership in the M. & A. M. more than ever a desirable thing.

A meeting of the organization will be called for four days during Grand Central Palace show week.

Taxis Goes with Crawford.

W. W. Taxis, of Philadelphia, who has been connected with the retail trade, has accepted the position of sales manager for the Crawford Company, of Hagerstown, Md. He will enter upon the duties of his new office at once.

ADMISSION ONE DOLLAR

Price of Tickets Doubled for Two Days and no "Paper" at the Garden.

In line with its policy of holding an "exclusive" show, comes the announcement of the Association of Licensed Automobile Manufacturers in the booklet of rules and regulations just issued for next year's event at the Garden, that the price of general admission tickets will be raised to a dollar on Tuesday and Thursday of show week. On all other days it will be the same as usual, that is fifty cents, but a far more stringent set of regulations has been adopted with regard to season tickets and exhibitors' admissions. The season tickets will be sold at $5 each and will be strictly limited to exhibitors; no one else is to have them at any price. In place of the usual complimentary tickets or pass books issued to exhibitors for distribution in past years, there will now be "special form" or "invitation" tickets and the change in title will cost the exhibitor twenty-five cents "per" for every ticket he applies for and a like amount for every one of those issued to him that is presented at the gate at any time during the show and for those he must put up a like amount.

In other words, there is to be no more "paper" of any kind and the exhibitor will have to pay the same price for every ticket actually used as an admission as is charged to the general public. The first installment of twenty-five cents for each of these "invitation" tickets is merely a deposit with the management and should they not be presented for admission, this amount will be refunded upon the return of the tickets themselves at the close of the show. They must also be asked for in advance as they will have the name of the exhibitor who applies for them printed on their face. Each exhibitor will be informed daily of the number of tickets bearing his name that have been taken in and will be required to settle

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for them then and there. Automobile dealers will receive admission badges.

Apart from these changes in the regulations bearing on the matter of admission, the rules are much the same as last year. No advertising signs of any nature whatever will be permitted, nor any of the "sold" signs that were swept away two years ago, while the welcome stilling of the multitudinous horns, will also be a feature. Despite every effort bent toward this end in the past, it is noticeable that the amount of tobacco consumed in the Garden during the show week has not been reduced, and a special effort is to be made next year to see that the rule against smoking is enforced.

Wooster to Resume.

William Wooster, the dealer jobber who combined automobile sundries with bicycles and other wares in a modest way, in a Barclay street cellar, but who nevertheless managed to make a skyrocket failure for $18,000, five weeks ago, is likely to resume business at the old stand in the near future despite all the dire things that his creditors were going to do to him if they ever caught him. Not that Wooster himself has put in appearance; he still remains discreetly in the background, waiting for his cue.

The extended probing of the bankrupt's financial condition as well as his dealings just prior to the filing of the involuntary petition against him, failed to reveal anything upon which to hinge further action, so that the creditor's decided to accept Wooster's offer of 30 per cent., half in cash and half in notes, the latter to be endorsed by the Manhattan Storage Company, a $1,500 creditor, pending the outcome of the sale of the assets by the trustee in bankruptcy. The latter only brought slightly over $5,000, so that the creditors decided to have the sale set aside in accordance with the agreement and accept the offer of settlement which was done, so that Wooster may soon return to his cellar in peace.

Weber Burned Out.

Fire which started in the storage room in the rear of the salesrooms of the Orlando F. Weber Co., Chicago agents for the Pope cars, at 1322-26 Michigan avenue, early last Friday night, destroyed six automobiles and badly damaged the building. The total loss is estimated at about $30,000. Charles Morrison, a chauffeur employed by a nearby garage, discovered the fire and, breaking through a window with the assistance of several others, succeeded in saving twenty-eight cars. J. K. Kelly and Morrison were both injured in the rescue work. The Weber Company's loss is estimated at $20,000, and the establishment of the Githens' Brothers and the Rushmore Dynamo Co., at 1328-30 Michigan avenue, to which the fire spread, were also damaged. The loss of the former is $6,000 and the other $5,000. The loses are well covered.

Atlantic Co. Takes Stoddard-Dayton.

An agency change in New York City that will probably cause some uplifting of brows took place this week, the Atlantic Motor Car Co., which has handled the Autocar in the Metropolitan district, relinquishing that agency and taking instead the Stoddard-Dayton, for whose reception a brand new and finely finished store has been fitted up at 1655 Broadway, the old quarters being continued as a garage and repair shop. Nor do the changes end here, for they include the acquisition of Allan H. Whiting, former sales manager of the Autocar Co., of Ardmore, Pa., who has been elected vice-president of the Atlantic Motor Car Co., and of P. F. Rockett, recently of the Zim-Rock Motor Co., last season's local agents of the Stoddard-Dayton, and who will be connected with the Atlantic Motor Car Co. in the sales department. Mr. E. R. Newton, of course, continues as president. The combination ought to prove one of the strongest in the city and with the splendid reputation of the Stoddard-Dayton behind it success should be assured.

Locomobile Agency Expands.

The Philadelphia branch of the Locomobile Company of America, is going to expand its facilities for displaying and caring for cars, and with that object in view has taken over the four-story building at 245-247 North Broad street, and alterations will commence October 1. On the first floor will be the showrooms and storage quarters and the company's officers will be located on the mezzanine gallery between the first and second floors. More storage room and showrooms for second-hand cars will be provided for on the second floor and on the third floor will be located two complete machine shops—one for the company's employees and the other for use of owners' drivers.

Packard Changes Hands.

There has been a change in the Packard agency in Chicago, the agency having been secured by Dr. W. B. Johnson and W. L. Delafontaine. Dr. Johnson was formerly a member of the Pardee-Johnson-Hamill Company, and was in charge of the commercial wagon department. This leaves the Pardee-Hamill Company without a car for next year, but it is understood that a deal for a well-known car is being consummated.

Fosdick Takes the Thomas.

One of the most important trade changes that has come to pass in automobile circles at the Hub in some time, is the signing on of the Thomas line for 1907 by the Harry Fosdick Company, who are located in the Motor Mart in Park Square. Harry Fosdick has been identified with the automobile trade in Boston ever since there has been such a thing. He handled the steam runabouts of pioneer days and was for some time manager of the Boston branch of the Winton Motor Carriage Co. In addition to the Thomas agency, which has hitherto been handled by C. S. Henshaw, the Baker electrics are also handled.

Fickling Succeeds Auto Top and Cover Co.

W. I. Fickling has purchased the business of the Auto Top & Cover Co., Inc., at 154 East Fifty-seventh street, and will conduct it under the name of Fickling & Co., at the same address. The capacity of the plant has been greatly enlarged to permit of the building of limousine and touring car bodies as well as painting, upholstering and other work in connection therewith. Fickling & Co. are also eastern distributors for Gabriel horns, Foster shock absorbers, Supplemental Spiral Springs and Harvard Auto Bumpers.

Columbia Steel Incorporated in Connecticut.

The Columbia Steel Co., of Elyria, Ohio, which is one of the Pope interests, has become a Connecticut corporation. The change is merely one of business convenience, as all the other Pope companies are incorporated under Connecticut laws, so that the annual meetings of the boards of directors may be held in Hartford. The corporation will begin business with $1,000 and the amount of authorized capital stock is $300,000, divided into 3,000 shares at $100 each. George Pope, W. C. Walker and George T. Morrow, all of whom are identified with the Pope Mfg. Co., are named as the incorporators.

Whitney to Celebrate Golden Wedding.

Amos Whitney, founder of the Pratt & Whitney Company and secretary and treasurer of the Whitney Mfg. Co., Hartford, Conn., who is also father of C. E. Whitney president of that company, has sent out invitations for the celebration of the fiftieth anniversary of his marriage. The celebration will take place at his home in Hartford on September 8th.

The Week's Incorporations.

Newark, N. J.—New Jersey Auto Car Co., under New Jersey laws, with $100,000 capital. Corporators—B. S. Smith, I. L. Popper and E. L. Popper, all of Newark.

Akron, Ohio.—Union Automobile Garage Co. increases capital stock from $5,000 to $10,000.

Hartford, Conn.—Columbia Steel Co., under Connecticut laws, with $300,000 capital; to manufacture steel for automobiles, bicycles, etc. Corporators—George Pope, W. C. Walker and George T. Morrow.

In the Retail World.

G. W. Schulte, of Scranton, Pa., has bought out the Kingston Garage and Motor Car Co., at Wyoming and West Market streets, Wilkesbarre, Pa., formerly owned by S. R. Snyder and J. H. Brandt. The business will be continued on the same lines as heretofore and S. D. Bishop has been installed as resident manager.

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England Buys More Cars.

A continued rise in the British imports of foreign cars and parts during the month of July, clearly revealed the growing fondness of the buying public for the alien products. As a matter of fact, the increase in total valuation over the business of June, amounted to something like $39,155. In detail, the whole number of complete cars brought in was 582, as against 530 during the thirty days previous, the valuation placed on them being equal to $1,193,105. Parts to the value of $770,965, added to this brought the total up to $2,084,090, which further emphasizes the growth when compared to $1,748,530, the figure for July, 1905.

Exports, on the other hand, although showing a considerable increase over those for June, still fell short of the May exportations. In all, 577 cars were sent out of the country, during the first seven months of the current year, which, with the parts also delivered abroad, made a grand total of $1,791,195, of which the increment credited to July amounted to $270,655. The totals of cars and parts for May and June, respectively, amounted to $279,930 and $242,760.

Manufacturers Discuss National Law.

The American Motor Car Manufacturers' Association has at least tentatively taken up the matter of a national automobile law. The subject is one that has long been a pet idea of Charles E. Duryea, a member of the committee of management, and it is he who has induced the association to consider the matter. He holds to the opinion that while State rights must be respected, such items as numbers and general equipment in the use of automobiles are within the domain of the inter-state commerce law.

Garage Men on Strike.

The Atlantic Automobile Garage Co., on North Carolina avenue, south, Atlantic City, N. J., is contending with a temporary tie-up, the cleaners, wipers and other night help going out on a strike Monday night. For a long time the men have been asking that their wages be raised from $1.70 per night to $2, but the company was disinclined to grant it, so this week they struck.

National Goes Under.

The National Automobile Co., of 205 East Eighty-sixth street, New York City, has filed schedules in bankruptcy, showing liabilities of $7,935 and nominal assets of $10,018, consisting of cash, $258; stock and machinery, $3,000, and debts due, $6,760. J. Edward Demar is president and Charles T. L. Allen secretary of the concern.

Detroit Thomas Cars Ready.

The E. R. Thomas Detroit Co. expects to have its first car running this week. In a little more than a month and a half this new concern has obtained its factory, installed a modern plant and is now ready to turn out cars. Profiting by the experience of others in the past few years, it will make its working year from September to June. That is, 1907 cars will be ready for delivery next month and deliveries of that model will be continuous until the following June, when the model for the following year will be ready for testing out.

Kilgore Bronze Shop Burns.

Fire on Saturday last destroyed the manganese bronze factory of the Kilgore Auto Air Cushion Co., Boston, Mass., makers of the Kilgore Pneumatic Shock Eliminators. Many patterns were burned but the company had a force of pattern makers at work on new ones within an hour, and so expect little or no delay in filling orders, although the stock of available bronze fittings has been materially decreased.

New Westinghouse Agency.

Another French car, a 40 horsepower Westinghouse, product of the Westinghouse Companies, of Havre, has entered the American field, and is being introduced by Maurice Thompson, of the export department of the Westinghouse Electric and Mfg. Co., and Alexander M. Thackera. Their temporary headquarters will be at the Manufacturers' Motor Car Garage at 54 West Forty-third street, New York City.

Ritchie Goes with Continental.

G. M. Ritchie, who enjoys a wide acquaintance in the trade, has become superintendent of the Continental Motor Mfg. Co., of Muskegon, Mich. Mr. Ritchie formerly was superintendent of the Auto Car Co., Ardmore, Pa., and later held the same position with Royal Motor Car Co., of Cleveland.

Caswell Becomes Sales Manager.

Louis R. Caswell, who has been connected with the Darracq Motor Co., of New York City, has become sales manager of that concern. Mr. Caswell is widely known, having at various times been connected with the Electric Vehicle, the Rainier, the Garford and the Viqueot companies.

Fisk Sales Staff in Conference.

Last week a conference of the branch managers of the Fisk Rubber Company as well as the entire staff of salesmen, was held at Chicopee Falls, Mass., to formulate policies for the coming year's business. Among other things it was decided to increase the number of clincher tires turned out under the G & J license.

De Luxe Goes to Detroit.

The De Luxe Motor Car Co., which has completed one model car at Toledo, Ohio, will shortly remove to Detroit, Mich. The concern is financed by Middletown, Ohio, capital and managed by L. J. Keeton, formerly of the Pope Motor Car Co.

A. M. C. A.'s Membership Increases.

During the past week the membership Committee of the American Motor Car Manufacturer's Association has acted favorably on the applications for membership of the St. Louis Car Co., builders of the American Mors, The Pierce Engine Co., Racine, Wis., makers of the Pierce-Racine, and the B. L. & M. Motor and Equipment Co., of Brooklyn. This now brings membersip in the association to a total of twenty six and further applications are to be acted upon during the coming week.

Automobile Tour a la Cook.

Jamaica is to be the first point of attack of the automobile tourist who goes "a-Cooking" it, or something that corresponds to the latter when the automobile is to be the means of conveyance once off the "briny." This first tour of tours will leave Boston on Oct. 31, returning Nov. 26th. One of the United Fruit Company's steamers has been chartered exclusively for the party, which will be managed exclusively by Chester I. Campbell.

New Pierce Agency in Cleveland.

The Union Automobile Co. is the title of a new concern formed at Cleveland, Ohio, and which includes W. C. Anderson, formerly of the Standard Auto Co., together with Messrs. Tehan, Hart and Osburn. It will do an agency and garage business and has already secured the agency for the Pierce Great Arrow. The location will be corner Euclid avenue and Handy street.

Pierce-Racine to Build a "Forty."

The Pierce Engine Co., of Racine, Wis., builders of the Pierce-Racine cars, have announced that their line for 1907 will include a 40-horsepower touring car. Although no data is as yet forthcoming the new car is understood to embody a number of meritorious innovations.

Zim Rock Takes St. Louis.

The Zim-Rock Motor Co., 1853 Broadway, New York City, has taken the agency of the St. Louis car, which was last year handled by the New York Motor Car Co. They will also handle the Pungs-Finch cars —a Detroit production.

Elmore Agency Dissolves Partnership.

C. S. Anthony and A. J. Smith, comprising the Elmore Automobile Co., Los Angeles, Cal., have dissolved partnership, Anthony retiring. The business will be continued by Smith at the old address, 957 South Main street.

Buffalo Garage Burns.

Fire in Kaufman's garage, at 58 Broadway, Buffalo, N. Y., on Saturday last caused a damage of $2,500. The insurance is not given.

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Much has been written and printed concerning the care and use of tires for automobiles and much misinformation has been circulated.

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A Prosperous Outlook.

If next year the automobile industry does not enjoy even a much greater increase of prosperity than has come to it this season, it will be chiefly owing to the fact that manufacturers have not taken advantage of conditions in the trade and placed their orders for material and accessories in time for them to make satisfactory deliveries to their agents throughout the country. Every manufacturer of materials which enter into the construction of an automobile has all the orders he can possibly fill up to January 1, 1907. With the parts makers it is simply a question of securing raw material. If automobile manufacturers do not obtain their full share of this prosperity, it will be due to one of two things: mismanagement or insufficient capital.

From the West and South come reports of the unusually excellent condition of the year's crops and from the East a corresponding condition in the manufacturing centers. The harvests of corn, wheat, rice and other grains promise to be largest ever known, while the cotton crop also is of magnificent proportions. In the steel, copper, textile and similar industries a most flourishing order of things prevail. It is of significance that the United States Steel Corporation has resumed payments of dividends on its common shares. Last week the Union Pacific Railroad increased its dividends from six to ten per cent., and the Southern Pacific Railroad has declared its first dividend on a five per cent. basis, while the money on deposit in savings banks is at about the high water mark—in Kansas for instance, late reports show that the deposits average $100 per capita for every resident in the State.

It does not require close study of the abstruse science of economics to trace the probable influence of such widespread prosperity. The indications are quite clear enough that there are few industries that will not feel the good effects. The automobile, for one, should reap its full share.

Meaningless Numerals.

No better illustration of the worthlessness of the records that are kept at Albany under the present New York law could be found than presents itself in the case of the number of cars attributed to Colonel John Jacob Astor by the daily press upon the authority in question and the number actually owned by that gentleman as detailed elsewhere in this issue. As statistics, it is evident that the value of the data that is being laboriously compiled at the capital and which has been collected for the past five years, is absolutely nil. There is no question whatever but that New York possesses by far the largest number of live registrations of any State in the Union, but what fraction of the thirty odd thousand the total that has now been reached, is constituted by those figures which really represent automobiles in use, there is no means of telling.

Colonel Astor is credited by the State with having registered no less than 28 cars, three of which have been cancelled, so that it is only natural to assume from this showing that he is still the possessor of some twenty-five cars. How far this falls short of the reality may be realized when it is stated that dividing it by two still fails to drop low enough to represent the number he owns. This is eleven of which number there is little probability that the majority will ever be active in the Astor service again. Of this number three are American cars, two of the present year's model and one of last. The remainder are of foreign make, two or three of which are in daily use while the rest are in various stages of dismantling.

It is unfortunate that the amount of labor which must necessarily be expended in compiling the records authorized by the recent law regulating motor traffic in this State should not be so directed that its result will have some ultimate value. The car that is registered to-day as it comes from the maker brand new is frequently sold within six months and registered again. It may change owners a second time within a like period, further adding to the registration figures. There are undoubtedly many instances in which a car has changed hands several times within two or three years and has been registered accordingly. And in many others, in the course of changing hands during an existence of three or four years these old cars have found their way into other States to artificially swell the registration lists. It may readily be imagined that at the present moment, when this has been going on for fully five years, the records of every State in the Union that has made a pretense of keeping them that long, or for but a year or two, are in a state of inextricable confusion and are utterly meaningless so far as their value as statistics of the number of cars in use is concerned.

"No Help Needed."

Parallel with the automobile's role as a destroyer of all precedent, comes its aptitude for rendering meaningless some of the old saws that have always been accepted as gospel. For instance, it is an inherent trait of human nature rather than a mere saying that "misery loves company." But does it where the automobile is the thing that is the cause of the grieving? Interest in a common cause gives rise to a fellow feeling that prompts the driver of every passing car to pull up and offer assistance to the man who is stalled by the wayside. Breakdowns apparently have a most disastrous effect on the owner's temper and manners, for the solicitous inquiry of the driver of a passing car who has came to a halt at the sight of the standing vehicle with its feminine passengers perched on a nearby fence,

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is more apt than not to bring forth a surly reply from the heated individual who extricates himself from beneath to find out why his labors have been interrupted. A gruff "No help needed" that is entirely out of keeping with the spirit of fraternity in which it is given is so often the reward of the "Good Samaritan" that it is not at all unreasonable to suppose that this class of drivers will soon be no more. The female contingent of the party usually tenders a half apology for the boorishness of its head by their embarrassed and uncomfortable looks that relieve the situation to some extent, but even this is not an inducement to a continuance of the practice. Knight erranty, even a la automobile does not appear to be looked upon with favor. It is evident that misery does not love company in this instance and the man who is troubled prefers to cure his own afflictions.

Don't Blame the Car.

How often is the expression "I wouldn't have a blank car as a gift" or its equivalent, heard wherever motorists congregate? And if the observant individual circulates sufficiently among the motoring fraternity and keeps his ears open he will doubtless hear this compliment rendered in praise of practically every car on the market during the course of a season. "It's bearings are like baked putty"; "It rides like an ice wagon" or "It hasn't enough power to get out of its own way," are remarks typical of those that follow the speaker's first announcement of his prejudice.

While it is true that no car is perfect and many are far from being so, it is likewise true that all have their good points and none are without their failings. And more than that, even could such a thing as the perfect car be realized it would by no means meet with a universal sale. In the words of a "knight of the road," human nature is so constituted that five men out of ten would not buy gold dollars at 85 cents without being talked into it, so that the perfect car would not enjoy any greater prestige than do its present approaches to this ideal.

But a poor mechanic always blames his tools and therein lies the secret of much of the dissatisfaction that is expressed both orally and in print. The same men who are allowed to take charge of high powered cars and who raise their voices as to their fallibility would not for a moment be allowed to take the throttle of a locomotive. If they were, it is doubtful if they would be able to get as far with it as they do with an automobile. Yet their complaints as to the lack of reliability of the particular car they own are unceasing.

It has long been notorious that machinery of any kind sent to the "land of revolutions" —South America, there to be taken care of by natives, will enjoy a span of life shorter by many years than it would ordinarily be good for if properly looked after, and even its shortened existence is a troubled one. Practically the same thing may be applied to the automobile. In countless instances, it falls into the hands of those who expect it to perform as long as they are willing to hold the wheel. The time has not yet come when complaints of the utter worthlessness of a car that are based on no stronger foundation than a lack of gasolene in the tank or a dead storage battery, can be said to have been relegated wholly to the realm of fiction. It is not in human nature ever to be wholly satisfied with anything for any length of time, but this fundamental fact aside, there never will come a time when everyone who essays to drive a car will be competent to take care of it as well, and just that long there will be complaints from this class of owners and drivers.

To reach the heart of every possible buyer and carve there a niche for permanent occupancy, is the crux of every sales manager. To some the power comes as a natural gift, while to others, it must be acquired by hard study and diligent practice. How it comes about that some little clever device, hardly worth the cost of distribution sometimes brings in thousands of dollars worth of business, while in other cases the patiently developed schemes of large promise and elaborate conception, fail utterly of their purpose, is one of the inexplicable features of the work, that is but partially accounted for by the vagaries of human nature. Generally speaking, however, it is the man with the largest understanding of the men with whom he is to deal; the man who gathers in the customers instead of pushing out the goods, who succeeds.

Whatever may be the actual fact as to its economy, the constant growth in favor of the six-cylinder type of motor is indisputable. Of the many firms which are now producing such machines, hardly one may be counted which is not a well known, if not a famous name in the industry. Comparatively few machines of this description are to be seen on the highways, to be sure, but that in itself is not convincing, since they are a novelty yet, and also, as they are of necesity expensive to construct and sell. They are not as economical as as the four-cylinder cars, we are told, and again, that they are more so. But, however that may be, matters little to the average user to whom the question really applies, that is to say, to him who is able to buy one. For what is half a pint of gasolene in a day, or maybe a couple of gallons more or less in a fortnight of constant runing, to the owner of a car costing several thousand dollars?

That there is a limit to the amount of time and energy which the average mortal is able to devote to the pursuit of mere pleasure, is doubtless true, though not always apparent. Supposing this to be the case, it would be natural to presume that the rise in popularity of one form of pleasure seeking would involve at the same time a diminution in the popularity of another. And so it appears, is the case in practice. Apropos of which, it is not surprising to note that a well known actor has just risen to remark that a combination of bridge and motoring has brought about a decline in the popularity of the stage in London. It is an odious team mate, but safe to say, that portion of the "crowd" that goes a motoring will benefit in health at least by the change.

However ridiculous it may appear to consider placing the control of the machine beyond the driver's power, when looked upon in the light of light weight pleasure and business vehicles, the fact remains that many vehicles of the merchandise and passenger carrying veriety are now being placed upon the roads, particularly in England and on the Continent, which, however safe they may be under ordinary circumstances, are a menace to themselves and other traffic, once they exceed a certain maximum low rate of speed, principally because of their enormous mass. And for the limitation of such vehicles to speeds well within the limits of reason and safety, it is not at all unlikely that in time some device of this nature will be found a necessity.

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WHERE THE "INDEPENDENTS" WILL HOLD FORTH



Holland Offers an Opening.

"The import duty on automobiles in the Netherlands is 5 per cent. of the value," writes Consul-General S. Listoe from Rotterdam, in describing the trade of that country. "Nearly all motors use benzine, which can be had everywhere and costs from 8 to 10 cents per liter (1.0567) retail. The restrictions with reference to the storage of benzine are very reasonable and do not affect the consumption. Motor cars are generally imported from European countries with the tires on. It seems, however, to be the opinion of dealers that it would be better to have American motor cars arrive without tires, but with steel Westwood rims, purchasers preferring to buy the tires here. Automobiles arriving by rail are usually imported set up in crates, but when arriving by vessel from the United States it is considered best to have them knocked down in cases. While the general condition of the roads and highways of the Netherlands is good, the country has thus far been a poor field for the sale of motor cars. Still there is a reasonable percentage of wealthy and progressive people in the Netherlands who can easily afford to be be owners of motor cars; but the people are conservative, and it will take years before the advantage of owning an automobile will be sufficiently appreciated.

"The dealers in automobiles do not, as a rule, purchase direct from the manufacturers; the trade is practically in the hands of appointed agents who have the cars on commission. In order to sell automobiles in the Netherlands, the cars should be on the spot for inspection with a live representative to solicit orders from dealers. At any rate, one machine should be sent as a sample, since every automobile must have a license here, and this permit is not granted until the machine has been examined by the government official. While there are no special obstacles to the introduction of American goods here, there are no special advantages. The length of time it takes for articles ordered to reach the Netherlands, the smallness of the stock for inspection, and the payment system are to the disadvantage of American manufacturers. Nevertheless there is an opening here for the American automobile that may be made to result in business for the home maker if proper means be taken to enter this market, but not otherwise.

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WINS MOUNTAIN CLIMB

White Runabout Scores Handily in Hundred-mile Uphill Race.

Los Angeles, Cal., Aug. 26.—Herman D. Ryus, driving F. C. Fenner's White racing car, yesterday won the big challenge race up North Baldy peak from Harris Hanshue, driving L. T. Shettler's Reo. The distance was 100 miles and the time made by the winning White was 4 hours 18 minutes. The record for the course is held by Shettler's Reo in 3 hours 51 minutes.

The race was the result of a challenge between F. C. Fenner and L. T. Shettler, both of whom are extensively interested in gold mining and considerable excitement prevailed here over the contest, nearly $10,000 changing hands as a result of the race.

At best the rugged mountain road is none too good and yesterday it was at its worst. At the start the altitude is 268 feet and at the finish rises to 6,540 feet above sea level. For ten miles the course runs up a treacherous river bed through a deep canon, and then passes through miles of miserable forest trails. Fremont Pass, considered the worst grade in America, which goes nine miles up and the 25-mile Mojave desert, are on the course and had to be traversed by the contestants.

Shettler's Reo was put out at 42 miles by the loss of a part of a universal rim. It is not known whether it was thrown accidentally or tampered with at the start, but it is suspected the latter is the case. One of the rear tires was thrown and as the lost section of the rim could not be found or replaced the car could not go on. Another race may result from the outcome. A 20 horsepower runabout was sent up after the contestants and made the round trip, 200 miles, in 9 hours 31 minutes. Fenner's car was a White runabout, built last year to race up Pike's Peak and which has been used by Fenner this year in traveling to and from his gold mines on North Baldy.

Cleveland Club to Hold Field Day.

Instead of giving a purely race meet this year, the Cleveland Automobile Club will hold a field day at the Glenville track during the latter part of September. The following program will be run off: Twenty-four hour contest, ending at 2:30 p. m.; 100-yard dash and change tire; stopping contest against horses; half-gallon contest; one mile nearest to three minutes; obstacle race; obstacle race, including horse-drawn vehicles; slow speed on high gear; backing contest; picking up contest; egg obstacle race.

Good Card for Empire City.

Seven events make up the program for the two days' race meet that is to take place this week, August 31 and September 1, on the Empire City track. The feature race will be a 1,000-mile contest, styled the "International Endurance Derby," in which Barney Oldfield, Tom Cooper, Guy Vaughn and Charles Wridgway are slated to start. The other events follow: Three miles, open to cars listing $1,000 and under; fully equipped; prize, silver cup. Three miles; open to cars listing over $1,000 and not over $2,000; fully equipped; prize, silver cup. Three miles; open to cars listing from $2,000 to $3,000; fully equipped; prize, silver cup. Five miles; open to fully equipped cars costong above $2,000; prize, silver cup. Five miles; free to all; cars that have won a trial heat or a race in which a mile was covered by winning car in one minute or better are barred; prize, $100 in cash or plate. The Empire City sweepstakes; invitation.

She Gave Him a Nickel.

Freemasonry among motorists still exists and one will usually go to the other's assistance unhesitatingly. There is a delightful little story told of a heroine stranded with ignition troubles. To rescue this Andromeda from the claws of the monster of mechanical difficulties came a motoring Perseus, clad in all the regalia of a chauffeur. Afterwards, telling the story at the club over an iced lemonade "with," the heroine said to her friends: "When he had made the thing buzz, you know, he then said in his most gentlemanly manner, 'Now what are you going to give me for all the trouble I have taken?' The ladies in the party looked shocked, and the gentlemen glanced at one another with comprehending smiles. "And so I gave him—er, five cents," continued the chauffeuse, with a delightful air of innocence.

Economy Test Off Again.

Again has the proposed economy test of the New York Motor Club been called off. It was scheduled for Wednesday, Thursday and Friday of this week, but when the entries closed last Saturday only eight cars had been nominated. As the committee did not think it advisable to repeat last year's affair, when each of the cars that finished won half a dozen prizes, it decided to not hold the test. Whether it will be held later in the season or postponed until next year has not been decided.

Chicago to Use Callender Formula.

The Callender formula will be used to determine the winner in the various classes in the forthcoming hill-climbing contest of the Chicago Automobile Dealers' Trade Association, at Algonquin, on September 6th. The total cylinder capacity multiplied by the number of seconds required for the climb and divided by the weight of the car in pounds will be the score used. Five classes have been provided for, as follows: For cars not exceeding $1,000; for cars listing between $1,750 and $2,500; for cars listing over $2,500, and steam cars, all classes.

TEMPLE'S BUDDING "CHAFFER"

Young in Years, but Knows the Tricks Already Has Ambitions.

Ralph Temple, president of the Chicago Automobile Dealers' Trade Association, tells a story about a curly-headed errand boy who is in the employ of the Morgan & Wright Tire Co., relates a Chicago scribe. As Temple drives his car out of the store every evening up bobs the youngster with a request to have a ride home, and he proudly seats himself where he can see every move Temple makes as he winds his car in and out along the crowded streets.

"I'm going to be a chauffeur," vouchsafed the little boy, one evening last week. Temple turned in his seat and ejaculated, "What!" "Yes," said the boy in a confidential tone. "I have been watching around the store and I can start the Reo now." "Have you been fooling with my cars?" Temple sternly asked. "Oh, no; but I watched the farmers come in and I watched the boys teach them."

"Tell me about it," said Temple. "Well, you stick in the switch plug and you turn the crank handle to let it buzz; then you chuck it up with water, gasolene and oil; then you pull back the spark lever so that you don't get your liver kicked out of you and see that the clutch lever is in the middle; then you swing the starting crank and the car goes like blazes.

"Why," continued the youngster, "the brother of Almy, your repair man, is already a chauffeur, and he is only a little bigger than I am." "So?" asked Temple quickly. "Why, when Almy was out testing your car he drove up home and took his little brother out and taught him how to drive your big six-cylinder."

"How much salary are you getting?" asked Temple, changing the conversation from such delicate grounds; "not that I want to employ you away from Morgan & Wright." "Why, I am getting $5 a week." "Well," continued Temple, "as a chauffeur you will soon be getting $25 a week."

Keep Spring Clips Taut.

It is essential that the nuts holding the spring clips to the axles of the car be kept taut at all times, as once they are allowed to slack off, the axles are apt to shift, throwing the springs out of position, thereby bringing an unequal load on the two ends, sometimes allowing the axles to shift transversely of the car, and, in the case of the rear set, altering the stresses in torsion or radius rods, with frequently disastrous results. In new machines the nuts are always apt to become loose after a short period of service owing to the weight of the body tending to compress the bed blocks under the springs, and also because the leaves are apt to settle down somewhat in use. Hence, it is necessary that all the nuts be gone over occasionally as a precaution.

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THOMAS DRIVERS ARRIVE

Quarters Engaged for All the Contestants and Course will Soon be Active.

Although the elimination trials for the Vanderbilt cup race are more than three weeks distant, many of the drivers are already quartered on the course and familiarizing themselves with its eleven sharp curves and fifty winding turns by driving around the 30-mile circuit in touring cars. This year preparations for the big race are far more brisk than last year and from present indications none of the drivers will allow their cars to be quartered in old barns or other places that come handily. Instead, preparations have begun to build suitable quarters on a more enlarged scale and in a few weeks the training camps will be veritable bee hives of industry.

Two of the French drivers—Gustave Callois and Hubert Le Blon—who, with Montague Roberts, will drive the three Thomas racers, that are to try for a place on the American team, arrived in New York City last week on La Savoie. After being driven over the new course in company with Roberts and E. R. Thomas, the manufacturer coming from Buffalo to greet them, Callois and Le Blon expressed themselves as well pleased with the course and said that it was much better adapted to the purpose than the Grand Prix course. Callois has all the appearance of a great driver. He is of the Lancia type although less portly. He stands six feet in height, is thirty-one and weighs 180 pounds. Le Blon looks more like a professor from some agricultural college. He is tall and slim, with stooped shoulders, has a Grecian cast of countenance and long flowing beard. He is thirty-four years old. Roberts, the American, is the youngest of the team, being but twenty-three, stands six feet one in height and weighs 170 pounds. The three drivers left New York City for Buffalo where they will test the cars over the roads before bringing them to Long Island, about September 10th. The Thomas quarters will be located at Krug's, Mineola. A garage, 40x60 feet, will be used exclusively for the racing cars and eighteen mechanics will have a seven-room flat across from the hotel.



GUSTAVE CALLOIS



HURBERT LE BLON



MONTAGUE ROBERTS

Herbert H. Lytle, who will drive the 120 horsepower Pope-Toledo, has engaged quarters at the Bull's Head hotel, and Joe Tracey and the Locomobile will be stabled at the Lakeville hotel. Tracey has gone to Bridgeport and expects to have the Locomobile on the road next week. The Frayer-Miller team, composed of E. H. Belden, F. E. Muscovics and Lee Frayer, have engaged the Holman estate on the Jericho turnpike, between Mineola and New Hyde Park. This left the Williston estate, which has been taken by the Frayer-Miller team, free, and it was quickly taken by George Robertson, who will pilot the Apperson. Sidney L. Breese, who, it is said, will drive the B. L. M., is to be quartered at Westbury, and Frank Nutt and the Haynes will be at the corner of Jericho turnpike and Mineola avenue. The Maxwell-Briscoe Company is building elaborate quarters for J. Fred Betz, 3d, on the Jericho pike. The Matheson quarters have been located opposite those of the Fiat team near Garden City. Ernest Keeler will be at Westbury with the Oldsmobile and Walter Christie has secured his old quarters at the Beekman estate on the Jericho pike.

Of the foreign drivers who will be in the race proper, on October 6th, several have already made plans for their camps. Foxhall Keene, who will drive a Mercedes, of course, arrived in New York two weeks ago; he will use his own country estate near Cedarhurst. Camille Jenatzy, another Mercedes driver, will be located at Mineola, where also will be George Heath, and the Panhard crew. Victor Hemery, last year's winner (Darracq) and Vincenzo Lancia, Felix Nazarro, and Dr. Weilschlott (F. I. A. T.), together with a host of mechanics, will sail from France on September 15th. Hémery will be at the Glenwood hotel and the Italians near Garden City. Eliot F. Shepard (Hotchkiss) also will be at Garden City. The last named will leave Europe on September 2nd. Albert Clément has chosen Johren's hotel at Mineola for his camp,

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and Duray, the Lorraine-Dietrich crack, will be a guest at Charles Raone Duval's estate near the course.

The cup commission gave out this week that ten days will be allowed the drivers for practice on the course before the elimination race on September 22. It is stated that all cars must be off the course by 7 a. m., or the drivers violating this rule will be fined $500 each and lay themselves open to disqualification. During the practice hours the committee will employ watchmen to guard the course and warn other users of the highway. The same rules will go into effect ten days before the race proper on October 6th.

When the Crank Case Leaks.

When the joint between the two halves of the crank case of the motor is found to be leaking oil, it can usually be checked by setting up the bolts which hold them together. If this fails, the parts should be dismounted and inspected. A few particles of grit may be found to have become wedged into the joint causing the separation or possibly, in previous repair work, the faces have become scratched or dented through careless handling. These and a more remote possibility of warping due to unusual strains, are the only conditions which can have caused the leak.

After having removed the cause, which is quite essential, the parts should be reassembled with a gasket of manila wrapping paper between them. This is not sufficiently thick to interfere with the adjustment of the bearings, yet serves to fill in the small inequalities in the faces which caused the trouble. If the joint is a particularly poor one, it may be advantageous to coat both surfaces with fairly thick shellac before applying the gasket, as this further aids in the process. In no case should glue or muscilage be used for the purpose.

How to Braze Tubing.

In order to braze two brass tubes together, first true the ends with a file. The end of one tube is now slightly enlarged by carefully hammering it on a taper mandrel, to accommodate the end of the other tube which has been chamfered with a smooth file. Before fitting them together, file inside the enlarged end and outside the chamfered end. Now bring them together, and wire them to a rod of iron, after which they may be brazed, says an exchange. To braze the seam of a tube, thoroughly clean the edges and a little beyond them with a file. A short length of iron or copper pipe is now twisted round each end of the tube to bring together and hold in position the edges. It can then be brazed without any risk of the edges springing apart. If a gas blowpipe is employed, the brazing is done on the outside of the tube; but if there is only a blacksmith's fire available, it is better to braze from the inside, especially if it is a short length of tube.

LATEST DETACHABLE RIM

Christie Uncovers His Device of Many Bolts and Nuts.

It has been said, and doubtless on good basis of fact, that but for the demountable rims which were employed on certain of the cars, the results of the Grand Prix and Circuit Ardennes, might have been totally different, certainly that the elapsed times would have figured out much lower than they actually did. That being the case, it is to some such device that all the proposed candidates for the forthcoming Vanderbilt trial are looking for their salvation from the time-devouring tire delays. Should it be possible for the American cars to mount rims of domestic design and manufacture, and with success, so much the better for the industry. This is a well recognized fact and several manufacturers of cars have called attention to the fact. Nevertheless,



CHRISTIE'S DETACHABLE RIM

up to the present time, but one response has resulted.

Walter Christie, who also is to be one of the contestants in the eliminating trial, has signalized his enthusiasm by offering to equip the team finally selected with a device of his own invention. This arrangement, which, as shown in the accompanying illustration, embodies the same general principle as that used abroad, yet differs from it in one or two particulars. In the first place, it is mounted on an all-metal wheel, which has been one of the features of the Christie construction for some little time, and, second, instead of using a fixed felloe with a detachable rim, the system comprises a rim and felloe combined, which is attached directly to the spokes by means of suitable lugs and clip bolts.

Despite the fact that by this means there are as many lugs to be released in making a change as there are spokes, while on the French device used abroad, there were perhaps half as many, Mr. Christie claims that by a method which he has worked out and by the use of special tools, a change can be made in as good time, if not better.

Caught up with the Trap.

A motorist who hails from a section of the country where traps are plentiful, tells a good one on himself. He was smoothly bowling along a good stretch of road not far from his home town with everything working to perfection. He was at peace with all the world, drinking in the fresh ozone as it swept by him at a good twenty-five per, more or less, the soft, rhythmic purr of the motor making veritable music, when all of a sudden a youthful cyclist darted out of a side road waving a piece of red bunting tacked on the end of a stick. Mr. Motorist immediately slowed down and was informed that there was a police trap just ahead. He was a law abiding citizen, but nevertheless he did not wish any question to arise over a fraction of a mile in speed, so he slowed down to a walk and crept along for almost two miles, half inclined to let her out again every few yards, as he more than suspected a hoax, when a bend in the road brought the trap in sight. The constable held the reins and his best girl was beside him.

Steamers for East Indies.

It is stated on good authority that a large contract for the supply of steam cars to the Dutch East Indies has recently been placed with a foreign maker, the intention being to install them in the service of postal and parcels delivery. Formerly the service with horses had proved very expensive owing to the loss of stock from climatic diseases. A motor car which has been in service for more than a year, is reported to have effected a saving of something like $1,500, which inspired the contract for an increased number.

French Firm Opens Driver's School.

In Lyons, France, the Berliet firm has opened a school for drivers, to be conducted by a competent engineer, and to give instruction in driving and the care of machines. This school, which will be open to all comers, is something of an innovation on the Continent, being, it is said, totally different in its intent from the apprentice system in present vogue, and not unlike that in use in several of the American factories.

Nantucket Must Lift the Ban.

Having carefully barred the gates of their little domain against the terrible automobile, the selectmen of the town of Nantucket, Mass., have now to unbar them. The State Highway Commission, in a decision handed down last Thursday, 23d inst., announced that the highway or so which the island boasts should be open to automobiles subject to the laws of the State. The gates have been barred for about three months.

It is a mistake to blame the carburetter for stopping up, when all summer long the gasolene has been strained through a linty cloth.

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FEW CHANGES IN NEW WHITE

Power Plant Remains Practically Unaltered but Body Lines Undergo Transformation.

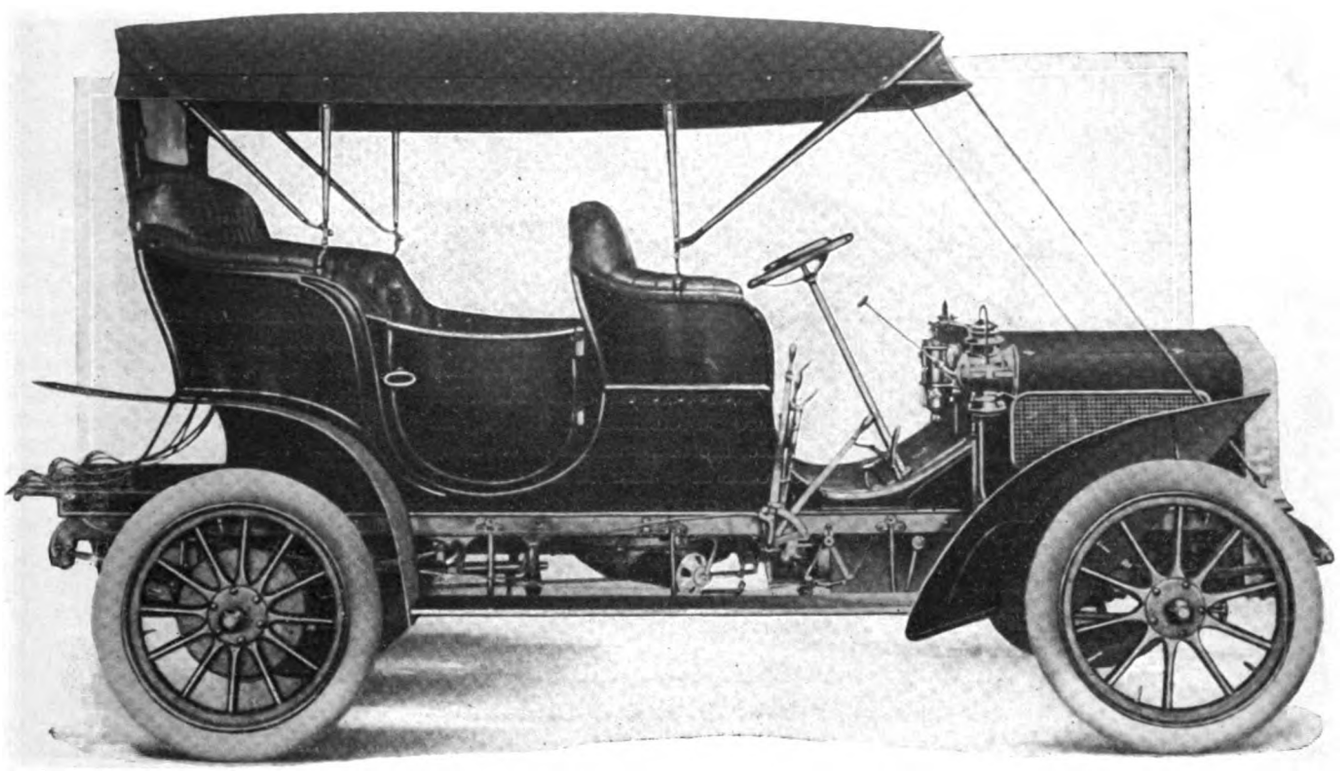
Continuing the steadfast policy of the company, the 1907 White cars will remain White cars, and, will closely resemble their predecessors of a year ago. But though the White Sewing Machine Company will continue to perpetuate the hall marks of their Cleveland product, it is not on that account alone, for the features which are distinctive have been proved to be worthy of continued use in the motor field. In other words, the cars will have comparatively few novel features, insofar as the chassis are concerned, the bodies, however, being modernized to the extent of the popular demand. Following the general trend of the makers at this time also, the leading model of the line will be of increased power, weight and size. Catering to a more conservative sort of demand another type will be produced which will be sold at a figure below the present standard.

Model "G," the leader, will be prepared with a view to satisfying the demand for a capacious and powerful machine of the touring class, and will appear in two forms of development, the one carrying a tonneau de luxe seating seven passengers, five in the tonneau, which is to be fitted with a broad lounge seat at the rear, and two revolving chairs. The arrangement being such that ready access may be had to any of the seats without disturbing the occupants of the others, and the revolving seats being demountable without difficulty, the value of the type as a luxurious passenger carrying vehicle, is indisputable. For more essentially touring purposes, the same chassis will be equipped with a smaller body, the extra space thus acquired being used to advantage in the installation of a comodious luggage rack, said to be the largest yet fitted to an American stock car. This will lie in the rear of the tonneau, its position thus forcing the rear seat forward to a point well within the wheel base, and insuring the easy riding quality so much needed in touring machines, under any and all highway conditions.

As to the power plant and mechanism, an increase in power has been secured by increasing the size of the engine and condenser, and also, by introducing into the system a feed-water heater. This latter being an innovation to the present type of the plant, is noteworthy in that it secures a 10 per cent. increase in the total efficiency of the system, by the transfer of a portion of the heat of the exhaust to the feed-water thus reducing the loss of heat in a measure, and also improving the total effective pressure at the engine at the same time. This latter result is also secured to a greater extent by increasing the size of the condenser. Structurally, the pre-heater consists simply of a coil of pipe inserted in the main exhaust between the low pressure cylinder and the condenser.

But for the lengthening of the chassis to allow for the more extended body, and the necessary increase in strength of parts, which this necessitates, the frame and gear will remain as heretofore. One change which will serve as a means of distinguishing the new models from the old, will, however, be the placing of the gasolene tank in the rear. The method of suspension is such that absolute security for the tank and its contents is assured, and as the bottom has several inches more clearance than the rear axle, no possible harm can come to it from the lower side. In the matter of clearance, a wise choice has been made in increasing it to a uniform 10½ inches. For the rest, springs, 44 and 48 inches in length are to be employed, 36-inch wheels, shod with 4 and 4½-inch tires, front and rear, and other comparatively unimportant alterations making for the better riding quality of the car have been made.

In contrast to this, Model "H" is to follow closely upon the footsteps of this year's Model "F," being of reduced wheel base, however, as already indicated, and consequently lighter in construction to a certain extent. Besides this, the rear seat of the tonneau is to be broader by 4 inches than that of the other car, thus giving more ample passenger room, and slightly altering the shape of the body in its general lines, without, however, materially changing its appearance. As to the power equipment of the car, none of the essential details have been altered except in minor degree, while the result of the condensing process, which perhaps best expresses its method of evolution, has been to secure a light and speedy car which cannot fail to find a ready response from the side of the buyer.



MODEL "G" WHITE, WITH TOURING BODY

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GATHERING OF THE FIRESTONE STAFF AND SALES FORCE.

Two heads are better than one and it pays the two to get together and talk things over at least once a year, if not oftener. At least that is the opinion of the heads of the Firestone Tire & Rubber Co., and that is the policy that results in the mutual interchange of helpful ideas and plans for getting and holding business goes without saying. They believe in not alone getting the two together, but bring all those who are interested in the common welfare of the company to meet, have a good time and talk it over among themselves. Comparing notes gives each man an insight of what his contemporary in another part of the country is doing and talking it over at length not only does both good, but results in ultimate benefit to all concerned. The photograph shows the Firestone staff and sales force at their annual "talkfest" or conference at the factory, Akron, Ohio, last week.

A Wonderful Performance.

Now that the trumpet blare attending the course of the Glidden Tour has subsided in some measure, there is opportunity to consider the performance of one of the figures which, though unrecorded in any of the current reports at the time, yet was perhaps more depended upon by travelers, and proved to be more dependable, than any other feature connected with the program. This was the Knox truck, which acted as baggage wagon during the run, and not simply kept well up with the procession, but finished without once getting inconveniently behind the schedule.

Considered in the light of the facts that this machine is not intended primarily for rough country work, and that its average rate of speed is comparatively low, this alone would have been enough. Yet aside from the mere performance in keeping to the time table, the achievement of covering the entire route at a rate of ten miles an hour, and at a cost averaging about four cents and two mills per mile, the feat is truly remarkable. A table showing the principal items of cost and the time and mileage factors, is given below:

Total distance	2007 miles
Total running time	196 hrs. 6 m.
Average mile per hour	10¼ miles
Total amount of gasolene used, 255¾ gals. at 25c.	$63.94
Total amount of lubricating oil, 17⅞ gals. at 75c.	13.41
Replacement two exhaust valve springs, at 50c.	1.00
Replacement one spark plug	.50
Replacement four dry cells, at 25c.	1.00
Replacement one spring leaf	4.00
Average cost per mile, 4⅛c.	$83.85

Passaic River Water as Fuel.

"Wouldn't it be fine," said a member of the New Jersey Automobile and Motor Club, at a séance last week, "if we could run our cars with water instead of gasolene? It would cut down expenses wonderfully."

"Impossible," said one of the younger members in all seriousness.

"Well," ejaculated the first, "I've smelled gasolene and I've smelled Passaic River, and if the strength of the odor has anything to do with the effectiveness of the fluid, I'll gamble that a quart of water from the Passaic would drive a car further than all the gasolene the Standard Oil Company can manufacture in a year."

Aluminum Paint with Smell Left Out.

One of the greatest drawbacks to the use of aluminum paint, which happily is going out of fashion among the car makers to a certain extent, and which, at least according to the workman's ideas, should have been ousted long ago, or replaced with a more worthy substitute, is the disagreeable and injurious effect which the essential oil in which it is suspended has upon the olfactory nerves. That this is not a necessary accompaniment of its use, however, is pointed out by a writer in an exchange, who declares that a wholesome, non-smelling, washable varnish suitable for the purpose, can be made according to the following formula: Gum arabic, dissolved in hot water to the consistency of honey, and borax in the proportion of about one ounce to the pound of gum, stirred in to render the mass stiff. The compound is then thinned down to working consistency, like an ordinary varnish, strained and bottled for future use. If an oil finish is required, a few drops of the oil of verbena may be added which will give a pleasant odor to the paint. Made in this way, the paint is said to be as lasting as that suspended in the oderiferous banana compound commonly employed.

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RATTLE IS NERVE RACKING

Mud Guard Supports and Brake Connections Soon Shake Loose and Hammer.

Of all the annoying circumstances in connection with the operation of a car, probably nothing can have a worse effect upon the nerves of a passenger than a continuous rattle and clatter in some portion of the mechanism. Many cars which have seen their first and second seasons of use on the road, develop a marvellous specialty in this respect, and nothing less than continual attention on the part of the driver can serve to abate it. Yet most frequently, the cause is but trivial, and if attended to in season, can be easily set right. If allowed to go unwatched, on the other hand, considerable harm may develop in a surprisingly brief time, for every rattle denotes lost motion somewhere, and this, in turn, denotes an amount of unnecessary wear which is as rapidly increasing as it is needless.

Generally speaking, the brake connections and mud guard supports are the first to go astray in this respect, and are, by the same token, the least likely to be attended to by the ordinary chauffeur unless he is followed up pretty closely, because they do not affect the running of the car directly. Where the old type of external brake bands are employed, they are quite apt to clatter against the flanges of the drums, while their connecting links and rods, rattle about and soon become so loose and uncertain as to be dangerous from the weakening of the pins and clevises. By the exercise of due care, however, this may be prevented. And its presence denotes in every case, a car which is not receiving its full share of attention in the garage.

Rattles from various other parts of the body and running gear not directly connected with the power plant, are similarly needless and apt to be allowed to assume serious proportions in the car which is not closely watched. Yet in most cases, they can be checked at the beginning by the simple use of a wrench, while in others, a little re-fitting or adjusting accomplishes all that is necessary. Neglect is the cause of more worn out cars and minor breakdowns than the average driver is willing to acknowledge, and where the cause of such mishaps lies at the door of the driver or care-taker, no amount of "knocking" the car or blaming extraneous conditions, such as long hours or hard work, should be accepted as excuse for the circumstances.

Four Good Reasons for Pumping.

That it is a good plan for various reasons, to keep the tires well inflated, is perfectly understood by all motorists, but aside from the fact that under such circumstances the car rides more easily, few care to enquire into the reason why it is better for the tires themselves, than to allow them to run slack. As a matter of fact, however, there are four valid reasons why, for the sake of the tires alone, they should never be allowed to remain at anything below their accredited normal tension. They are:

(1) A well-inflated tire presents less surface to the road, and consequently less friction is set up.

(2) The material of the tire being fully extended does not work to the same extent as when slack, and thus lasts longer.

(3) It is impossible to burst an envelope, or, rather, air chamber protected by a good envelope by any pressure set up by heat acquired when running on hot days if the tire be well inflated.

(4) The surface presented to the road by a fully-inflated tire being smaller than that presented by a partially inflated one, such a tire runs less risk of being cut by objects on the road.

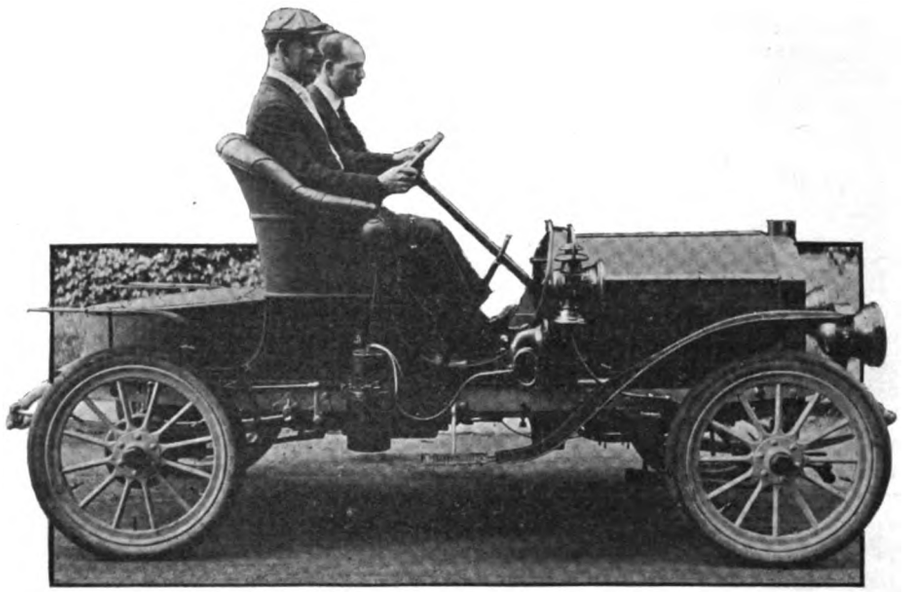
NEW MODEL POPE-TRIBUNE

Hagerstown Factory Produces a Four-Cylinder Runabout on Continental Lines.

One of the newcomers in the ranks of next season's four-cylinder runabouts is to be the Pope-Tribune, Model X, the trial car of which has just been put into commission, and sent out on the road. In its general aspects, the car will fall into line with common practice, the continental type of hood being abutted by a concave metallic dash, while the turtle deck conforms nicely with the lines of the seat, which is drawn in the spirit of the King of Belgium fashion. The guards have the long sweep of the racing cars in front, and follow the contour of the wheel in the rear.

The motor will be of 18-22 rated horsepower, and will be an exact duplicate of that mounted in the Model F. Pope-Hartford, of this year's manufacture. This is a conventional vertical motor, of 3¼ by 4½-inch dimensions, with valves in the head, walking beam and tappet mechanism, and neat construction. All gearing is enclosed in accessible casings, and the circulating pump is gear driven and mounted on the engine housing. All parts are fitted with extreme care, and the cylinders, pistons and rings are ground to fit.

The transmission is mounted throughout on anti-friction bearings. Three forward speeds are provided for, the changes being effected by the shifting pinion method. Shaft drive is furnished, and all mechanical parts are constructed according to the latest tenets of the art. While the price has not been announced, it is understood that it will come well within the range of the term "popular."



THE 1907 ADDITION TO THE POPE-TRIBUNE FAMILY

To Equalize the Wear.

In machines in which plain bearings are used which are only loaded on one side, as is the case with the wrist-pin bearings, counter-shaft brackets on double chain-driven cars, and in numerous other instances, it is possible to save the expense of renewal by simply turning them around to bring a new side into play, thereby almost doubling the length of life. When this has been done, of course, the bearings so treated should be watched for signs of destructive backlash, which is likely to occur if the wear has been excessive, and in case it develops, a new bushing should be inserted. In case this is not convenient, it is sometimes possible to fill up the worn side with babbit, first recessing the bronze in such a way as to give a hold for the new metal. After the job has been completed, care should be taken to see that the load comes on the bronze side.

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STORIES MUCH EXAGGERATED

Inflated Accounts of Astor Cars and Garage Lead Visitors on to Disappointment.

Divide by four and halve the remainder is a formula generally recommended as a means of ascertaining the truth of the matter where the figures given in the average press report are concerned. Exaggeration is the spirit of the age and the newspapers not alone pander to it, but foster it of their own volition. Thus it has been that the stories of the large number of automobiles owned by certain prominent and wealthy men have been spread abroad, increasing, as is usual, with each telling. Colonel John Jacob Astor is one of these and while the press undoubtedly has been largely instrumental in spreading broadcast the wonderful tales of the number of cars he owns and the lavish manner in which they are housed and cared for, some of the blame for the figures at least may be laid at the door of the bureau of automobile statistics at Albany, if that be the title by which this branch of the administrative end of the State government be known.

Colonel Astor is popularly credited with being the possessor of no less than 28 cars in the majority of these stories and their coincidence on this point is probably brought about by the fact that the origin of the figure may be traced in every instance to the same source—the aforesaid records at the capital. Probably there have been as many cars as this, or more, bought by the house of Astor during the period which its head has gone into automobiling so strongly, but like the cars of every other motorist, they have been sold, sent to the junk heap or permitted to pass into oblivion in one of the many ways that the automobile has of doing, leaving nothing behind but these mute and meaningless records so carefully compiled at the State's expense.

"Mr. Astor's automobiles number twenty-four," starts of one of these accounts that is typical of the Sunday edition story of this kind that is written down to the popular taste wholly from the imagination of the man behind the typewriter. "He is now acquiring machines at the rate of one every two or three months, and the fad with him instead of waning waxes exceedingly. Three machines that he recently purchased averaged more than $5,000 each," it continues. "The average cost of each of his machines is about $5,000, making a total of $120,000 for all.

"These figures are exclusive, of course, of any supplementary equipment that goes with each machine. Acetylene lamps cost as much as $150, and Mr. Astor must have the best of everything when it comes to automobile fixings. He does not hesitate to pay $100 for a speedometer-odometer. Covers for seats, tops for touring cars, gradeometers, emergency lighting tanks, sets of automobile tools—all these accessories eat up money. But Mr. Astor has more than enough to keep the wolf from the door, so each automobile in his possession has its own particular equipment right down to the smallest detail. His investment in these things alone reaches way up into the thousands of dollars.

"Then there is his garage, the best equipped private establishment of its kind in America, if not in the world. It stands on Mr. Astor's country estate, Ferncliffe, near Rhinecliffe, on the Hudson. Viewed from the outside it is uninteresting enough, but inside it is systematically filled with the latest machinery for repairing and keeping automobiles in order. Indeed, so complete is the equipment that an automobile could almost be built in entirety in the garage. A feature of the garage is the pit over which an automobile is placed when the shopmen wish to work underneath it. And as at the average public garage, there is a chain derrick with which to hoist a machine to the required height and hold it in any position desired by the workmen.

"Three men are kept constantly employed in the garage. The head of the garage, as skilled an automobile mechanic as can be found in this country, receives a salary that is not possible to the average professional man, and in addition a home is provided for him on the estate.

"It is in the garage that Mr. Astor, in overalls, tinkers with his beloved machines by the hour. He tinkers to a purpose, too. It is to be doubted whether another millionare automobile owner knows so much about the workings of an automobile, or can remedy a defect in so short a time. He has doubled up his big frame in the garage pit numerous times, and his great physical strength enables him to lift pieces of machinery none of his assistants can budge."

And so on ad libertum. This is but one of the many manufactured tales that has been ground out from time to time to help fill the Sunday magazine section.

When a Motor World man visited Ferncliffe he was greeted cordially by the superintendent in charge of the estate but his request to be shown the wonderful garage and the collection of automobiles only elicited a non-committal smile that foreboded disappointment. A small and unpretentious building near the superintendent's residence was pointed out as the garage and the single attendant in charge of the place made no effort to conceal his mirth at the arrival of "another one to see the automobiles."And he was frank to explain that that was exactly what everyone did as soon as he or she struck the station at Rhinecliffe. "They rush up here the very first thing to see the automobiles and you ought to see their faces when they strike this place. You never saw such a disappointed lot in your life. But they keep acoming just the same. I suppose the records at Albany show all the cars that the Colonel has ever bought and the newspapers print some tall stories about them, and there you are."

This was supplemented by the information that Colonel Astor was at present touring abroad and had two of the best machines in the collection with him—both of them of foreign make and presumably recently acquired. Of those that comprised the remainder of the collection standing on the garage floor, as shown by the accompanying photograph, three were American cars and three foreign. The price of all three of the American cars in the aggregate would not exceed $5,000, and one of them—a 1905 model, was for sale atsecond hand. With one exception the three foreign cars, all of which were of much older manufacture, but one was intact and the other two were in varions states of dismantling. The repair shop with its endless modern facilities that would suffice to construct a car entire, about which the gilded fancy of the space writer has woven such an alluring account, consisted of a six by eight room filled with a heterogenous collection of tools and machines that did not look as if they had been used in months.

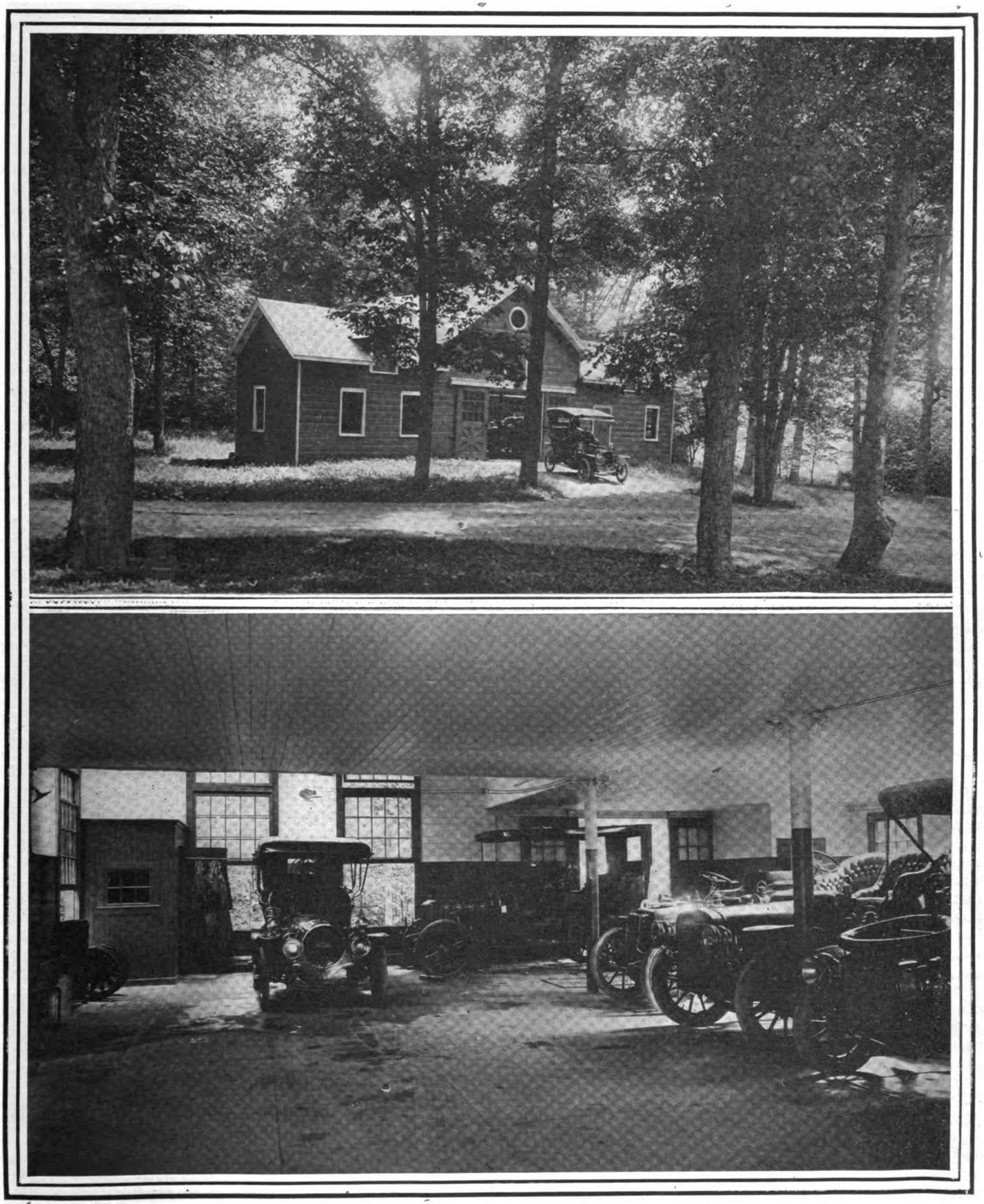
Its equipment consists principally of a lathe, a power hack saw and a few other similar tools driven by an electric motor, but the condition of the shop generally showed that no work of any moment had been done there in some time, and this was verified by the superintendent, who added that "only minor repairs were done there anyway. Anything at all serious was sent away."

Of the collection of cars shown on the floor in the photograph, aggregating in value something like $35,000, the three foreign machines being figured at $10,000 each, the only one in active use is the small American car acquired within a month or so and costing less than $2,000. This appears facing forward from the rear of the garage. So much for the somewhat substantial variation between the average Sunday newspaper tale and the reality. As a matter of fact, Colonel Astor's garage is but one of a score or more that can be found within easy distance of New York City, many of them being far more pretentious. Doubtless, also, there are many enthusiastic motorists who can display an equally impressive showing of cars of varicus makes.

Neither Colonel Astor's penchant for expensive accessories so glibly told in the account referred to is substantiated by the cars shown, nor is his fondness for tinkering with the cars and hauling their "innards" out by means of a modern overhead travelling crane borne out by the equipment of the garage.

As a matter of fact, though Colonel Astor spends a large part of his time at Ferncliff, it is greatly to be doubted if he ever bothers himself greatly about repairing any of his cars.

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THE ASTOR GARAGE AT FERNCLIFF, RHINEBECK, N. Y.

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IMPORTANCE OF THE FLOAT

The Essential Part it Plays is Seldom Realized Until it Goes Wrong.

Although it seldom comes in for any great amount of attention on the part of the user, it nevertheless is a fact that the float is a most vital part of the carburetter system, and hence, of the life and activity of the motor. Yet so well behaved is it in the ordinary course of events, that many motorists drive from one end of the season to the other without even once setting their eyes upon it. When it goes wrong, it perhaps cause trouble enough to make up in good measure for its previous lack of annoyance to the driver, yet upon the whole, it may be said to be one of the most well behaved organs in the entire car. How it has come about that during the comparatively brief time that float-feed carburetters have been in common use, their manufacturers have reached a point where they can produce them at low rates of cost and high rates of production, is perhaps a long story, but at all events, it reveals a good deal of deep study, and a mastery of the problem of simple and economical construction.

In the trade press, frequent reference is made to the faults of floats in general, to the perfections of one or two in detail, but seldom, is the subject of floats and their connections taken up as a subject by itself, and as such treated independently. Yet, a review of the several types in common use, together with some general description of the methods employed in their manufacture, is by no means uninteresting.

In the first place, although perhaps not the first to be used, it is apparent that the cork float is the most simple and natural contrivance which could possibly be applied to the purpose of the carburetter. The material in its natural state requires little or no treatment other than that necessary to shape it and fit any connecting parts, and, what is still more important to the maker, it is inexpensive, comparatively speaking. Yet, despite its advantages, cork possesses an unpleasant habit of deteriorating in its buoyant value after a period of use, tending to become soggy, and also disintegrating to a greater or less extent. Finely divided particles separating themselves from the mass, and floating off by themselves, ultimately invading any small passages where their presence is not beneficial.

This being the case, even in occasional instances, proved an excuse for a nominal improvement to the simple cork float, which took the form of a light waterproof coating. Shellac and varnishes have been tried with this intent, but when submerged in gasolene, it has developed that many such coatings are ultimately effected by the liquid, which besides its properties as a solvent, tends to permeate the most minute pores, thus water-logging the float which has been coated in this way. Hence, it lay in the natural course of events, for the improving hand to apply a coating of copper electrically deposited. Metal deposited in this way is, however, likely to be more or less porous, hence, floats so treated, while superior to those which are painted, are open to the same objection of becoming laden with the fuel after a greater or less period of time.

A more stable type of float, is that which is made entirely of copper or brass, either bent or spun into shape, and soldered at the joints. This type is perhaps more common than any other, and does good service yet is open to two objections, for unless unusually well made, the weight of the solder is unevenly distributed, and the float in consequence tends to list to one side, requiring in consequence some sort of counterbalancing, usually in the form of extra solder disposed about its upper portion, while, on the other hand, the service of the float requiring it to withstand constant vibration, the solder sometimes gives way owing to a species of metal fatigue, which produces disintegration, and causes it either to break or become porous.

Perhaps the nicest method of float construction, from the mechanical point of view, is that employing a combination spun and electro-deposited chamber which, as its name implies, is made of sheet metal which is first spun into its approximate shape, and then electro-plated. This process produces a seamless float, and one which is very enduring, since the deposited metal seeks out all the larger pores of the spun base, filling them up, and finally leaving a smooth surface, absolutely impervious to the most penetrating of liquids, and uniform in density and buoyancy throughout.

As to the more intimate considerations of shape, and method of connection with the regulating valve, it is obvious that these depend almost wholly upon the nature of the carburetter to which it is to be applied, and hence come without the province of this discussion. Annular floats are becoming more common constantly, simply because of a tendency on the part of many carburetter makers to employ concentric supply and mixing chambers, yet it is obvious that for the best purposes of float construction and efficiency alone, that form which is simple, evenly loaded immediately over its center of gravity, and hence perfectly balanced, is the best.

Motor Guides in the Alps.

So great has become the traffic of touring motorists through the passable sections of the Alps, that it is said a considerable employment has developed for expert guides who pilot the cars through the passes, and having some little understanding of the foibles of the average touring car, are able to advise wisely as to the handling.

EXPERIMENTS WITH OXYGEN

Instantaneous Ignition and Complete Combustion Advantages Accruing from it.

While ordinary atmospheric air is usually considered "good enough" for the purposes of the internal combustion motor as far as the uses of carburation are concerned, it is a well known fact that since its proportion of oxygen is the only constituent of real value to the mixture, the balance actually serves as a dilutant and materially interferes with the progress of combustion up to a certain point in the explosion, after which its expansion partially regains the work lost in the beginning. On this account, it is obvious that an advantage is to be gained by the use of pure oxygen alone.

As a matter of fact, experimental results testify to two marked advantages accruing from the use of oxygen under such circumstances. First, the explosion is chemically complete, the products of combustion being of less volume than where air is used, and the combustion by the same token being more efficient, and second, the ignition is almost instantaneous, the maximum pressure of the cycle being attained much earlier in the stroke than under the more ordinary conditions. The waste gasses being diminished in volume owing to the completeness of combustion, the exhaust stroke is attended with less back pressure than commonly, and a secondary saving is in this way accomplished.

It may be a matter of surprise to many motorists to learn that more than one racing triumph has been due largely to the use of oxygen, several well-known racing men having taken it up with good results. Among these is said to be Clifford Earp, the Englishman, who figured on three tires at the Ormond meet of last winter, afterward distinguishing himself by protesting the event when it had been almost forgotten in the rush of current happenings.

Mr. Earp asserts that he owes many of his successes to the use of oxygen instead of air, and that he has found it to have no injurious effect upon the cylinders. In practice he found that starting the engine on oxygen was not feasible, bent connecting rods resulting from the instantaneous ignition at low speeds, so that he started up on ordinary mixture, automatically cutting off the air supply, and gradually turning on the oxygen when the car had attained a good speed.

When the teeth of a driving sprocket become worn, it frequently happens that in a double chain driven car, a new lease of life may be obtained by simply swapping the pair of drivers from side to side, thus bringing the back faces of the teeth into regular use.

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THE POPE FORCES STARTING FOR SAVIN ROCK.

The Pope Annual Outing.

Outings of factory employees are matters of common occurrence, but it is not often that the method of conveyance takes the form of $100,000 worth of automobiles, nor that getting to and from the scene of festivities involves a round trip of almost 100 miles. These, however, were the privileges enjoyed by the Pope Mfg. Co.'s force on its annual outing, on last Friday, the 17th inst. On that day the Pope force went en masse to Savin Rock, just to the east of New Haven. The procession of 28 cars was led by vice-president Albert L. Pope in a 45 horsepower Pope-Toledo; Charles E. Walker, second vice-president; Colonel George Pope, treasurer, and W. C. Walker, secretary, also handling the wheels of their machines on the trip. The party was added to by recruits from New York in the shape of C. E. Spencer, assistant manager of the New York branch, who drove from that city, and E. E. Hinsman, manager of the Westfield works.

Helping the User.

One of the most discouraging phases of the gas engine accessory business is the deplorable lack of knowledge on the part of the average user of all things pertaining to the ignition problem. As a result of this, makers and dealers in ignition supplies are constantly being bombarded with all sorts of inquiries relating to this or that portion of the field, all, or nearly all, of which fall under one of a possible series of general classifications. The circumstances governing the various cases are varied, but in general, the solutions required are closely analogous, one man's trouble being quite apt to be that of several others. The necessity of handling a vast bulk of correspondence of such a nature, has forced the Dayton Electrical Manufacturing Company, Dayton, Ohio, to adopt a system of inquiry blanks and reply forms, which are intended to cover all the points essential to the decision of any question which may arise.

Accordingly, it has prepared a set of such blanks, which are being sent out to all users, upon which may be noted the characteristics of any system in use, together with any difficulties which may have developed. Upon receipt of one of these, the company goes over the problem, and has one of its engineers fill out the reply blank, which gives complete instructions in condensed and systematic form, at once reducing the time of the consultation, and putting the conditions in a clear and unmistakable light. Together with the written instructions, will be furnished a printed wiring diagram, designed to fit the case, and the immediate result will be that of putting the recipient in practically the same position as though he had personally interviewed the engineer. One noteworthy feature of the system is that it will enable the company to get hold of all the data required at once, without having to wait for special correspondence, which, of course, will materially hasten the progress of the inquiry. The idea, which is a distinct innovation, is applicable to any ignition system, whether of the "Apple" type or not, and, therefore, should prove of general value to the trade.

A Folding Ladder for the Limousine.

When touring the country for sightseeing purposes an open body of the ordinary tonneau type is certainly all that could be desired, but the inconveniences of dust and wet weather have brought the enclosed type into much favor with the seekers after comfort. The top of the car is a handy spot for the carrying of luggage and spare tires, and the difficulty of reaching them has been solved in a simple manner by a Frenchman, who has invented a small portable ladder, the rungs of which fold up into the uprights.

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HERE'S THE MOTOR CHAIR

Comes from France, but There are Fields of Possible Use in America.

If, at the Florida winter resorts, there is a truly painful sight it is that of the young negroes laboriously pedalling the so-called wheel chairs often containing men or women of ponderous weight. When the "human mules" encounter a headwind on the beach, their labor is something fearful to behold. In Atlantic City, N. J., and a few other resorts, the wheel chairs more nearly resemble overgrown baby carriages; they have no pedals, the black fellows using their hands instead of their feet to apply power. The suggestion often has been made that even a light motor applied to such chairs would greatly add to the pleasure and distance of the occupants and even more greatly lessen the labor of the "mules" but nothing ever has come of them.

In view of the successful development of the motorcycle in this county, it would seem that some progressive American would have seized on the idea long since, but it has remained for a Frenchman to evolve something which at least is a step in this direction. This is termed "L'Auto Fautieul," or motor armchair. It is in reality a motor tricycle and is designed for the use of invalids or cripples who are not incapacitated from taking care of the machine. Power and speed have necessarily been subordinated to the demands of comfort and from the side its appearance differs very slightly from that of the ordinary wheel chair, except that handles or similar means of assisting in the business of propulsion are not in evidence. Liberal sized pneumatic tires are used on the rear wheels which are about 28 inches in diameter, but the steering wheel is of such diminutive size that any attempt to speed the machine would undoubtedly result disastrously. This wheel has a small solid tire.

The power plant consists of a four and a half horsepower air-cooled motor, mounted on the rear axle at an angle tilted backward from the vertical. Instead of driving directly to the axle or driving wheels, however, a variable speed gear is interposed affording a range of from 5 to 15 miles an hour. A special form of foot brake acting directly on the motor shaft is provided. To judge from the appearance of this first type of motor driven arm chair it would form a dangerous pastime to attempt to drive it at its maximum speed on anything but the smoothest and most unobstructed of highways and even under such conditions it would constitute a ticklish occupation. This, however, has little bearing on the fact that a motor-driven chair of the type now pushed by the thousand up and down the walks of seaside resorts would form an excellent innovation. It would travel faster and a great deal further in the same time and could doubtless be run profitably for a very little higher rate than now obtains for much inferior service. And—neither the avoirdupois of the passenger nor the chance of a stiff head wind would bother the attendant.

Got There After All.

How much can be accomplished in the face of adversity by pluck and persistency, is shown by the performance of a foreign car which was entered in a recent hill-climbing event in Ireland. In order to reach the scene of the climb, the car was driven from London to Holyhead in record



L'AUTO FAUTEUIL

non-stop time, and finally arriving at a point within a few miles of the course, became disabled owing to the breaking of the gasolene pipe at the tank in the rear, allowing the air for the force-feed to escape. As there were no shops at hand, and repair accessories were scarce, it began to look as though the trial would have to be given up, but the self-reliant driver instead of yielding, proceeded to dismount the acetylene generator and make use of its tubing in rigging up a temporary supply by the aid of an old fuel can which was connected directly to the carburetter in this way. Held in the arms of his passenger, this improvised tank supplied the motor until the course was reached, just as the event in which it had been entered was being started. There was no time for repairs, and the car accordingly was sent up the hill in its place, finally winning its class and coming off with flying colors, despite the obvious handicap.

A new aluminum-zinc alloy is described in a recent issue of the Mechanical World, which has been given the name of "Alzene." It is reputed to be equal in strength to a good grade of cast iron, and superior to it in elasticity. It takes a fine smooth finish and does not oxidize readily. It is white in color and melts at a low red heat, when it becomes very fluid and pours well. It is apt to be brittle, however.

THE "GOOD ENOUGH" HABIT

Some of the Damage it Does and How it Pays to Avoid it.

If there is any one little habit that above all others eats holes in the Sunday clothing of a man's business methods it is the "good enough" habit, remarks Hardware. A letter is dashed off, not fully thought out or quite satisfactory but "good enough"; still it lacked just the last vital force that lands the order and a valuable contract is lost. An agreement is drawn up ready for signature. Some deficiency is apparent in it at the last moment and is finally dismissed with the mental comment, "It's good enough. Let it go." But the defect invalidates the papers and costs some one a pretty penny as well as a lot of trouble and hard feeling.

An order for new stock is given that a little more consideration would show was not a well balanced one, but it is allowed to pass as "good enough" rather than take the trouble of making a few inquiries. Result: a lot of goods that are not needed and some empty shelves in places where the stock was really short. In a dozen other details of more or less importance the "good enough" principle is applied until the whole business is honey-combed with unsatisfactory arrangements.

Nothing is good enough except the best that can be done and any concern, however humble, run upon that principle is sure in time to be a more desirable possession than a more pretentious neighbor conducted upon the opposite plan. If a letter can be improved upon it should be re-written even if it is only a notice to Bill Smith that the plow point ordered for him has arrived. It will take time, but the next one will be more carefully prepared in the first place, and time spent in establishing the habit of exactness is time well spent even if the richest customer on the rolls of the concern has to cool his heels outside while it is being done; for it will eventually, if persisted in, place any establishment upon a footing to be proud of.

Efficiency in Mufflers Defined.

The Technical Committee of the Automobile Club of Great Britain, having been invited by the Club Competitions Committee to state what in their opinion constitutes an efficient silencer, have laid down the following definition:

"Apart from any question of back pressure, an efficient silencer is one which renders the emission of the exhaust gases from an engine inaudible under ordinary running conditions at the distance of 10 yards from the side of a car in open road, and which is practically gas-tight everywhere except at the proper outlets."

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A NEW CARBURETTER AILMENT

The Amateur's Puzzling Tale of Woe that was not Such a Conundrum after all.

"Did you ever have any experience with a carburetter that was subject to fits?" asked The Amateur, settling himself down to his after dinner cigar.

"Well, that depends on the nature of the malady that you describe by the term of 'fits,'" was the reply of the Expert Adviser and handy reference in case of need. "It's usually hard enough to diagnose anything more serious than one of those found in the every day catalogue of ills, but this long distance diagnosis is simply a matter of guess work all the way through, and what is more, every time you suggest a solution of the difficulty the man who has come to you for advice heads you off with 'Oh no, I looked at that and I'm sure that it was all O. K. In fact, I looked at it half a dozen times and it was working perfectly. There was plenty of gasolene or the spark was good and hot,' as the case may be. The truth of the matter is, that, not finding the trouble on the first or second round of inspection, the man who was up against it got so confused that he probably looked at the same few things half a dozen times but never though of investigating the right one. After you have gone all over the ground with him—at long range, of course, just as we are doing now, he either comes to the conclusion that probably you don't know as much about it as he thought you did anyway, and that he himself will either tinker with the thing some more, or else look elsewhere for help.

"Oh yes, there are other varieties; some of the slightly more hopeful ones will conclude with 'Maybe what you say about the carburetter is the root of the trouble. I'll take a look at it and see if a little adjustment will correct it.' He may not strike oil through following the advice, or again he may—the fates are not always propitious. So you see carburetter 'fits' are something about as definite to work on the universal plaint that 'the engine won't run.' A great many of the troubled ones think that is sufficient explanation. If you are on the spot and a man comes to you and tells you that the engine won't run why then it's your move and all you have to do is to get to work instead of formulating hazy theories. Sometimes you can get an engine going in less than five minutes where the other fellow has been working at it steadily for a couple of hours. The trouble was, he put in most of the work at the crank, whereas it's a good rule to use your brain to save your palms. Look for the cause of it first and try the crank afterward. Just what you mean by the 'fits' you were speaking of—fits of running or fits of stopping?"

"More of the last than the first unfortunately, and that is just where the trouble lies," replied the Amateur. "If the stopping could be directly traced to some fault or other and a new start made the movement it was remedied, I wouldn't think anything of it. But the engine will suddenly stop firing—everything is all off in a moment just as if a wire had broken or a connection jogged loose. But an examination never fails to reveal the sparking end of the machine in good condition. You immediately decide that the gasolene failed for some reason or other. Every man who has run an automobile for any length of time soon comes to realize that given the two essentials of a mixture and a spark and the result is movement.

"But once in a state of adjustment where the engine runs well, when it runs at all, you hate worse than sin to go monkeying and just for luck you tackle the crank. Sometimes she goes off again the first turn and others you wear the skin off the palm of your hands and the keen edge off your patience without so much as a puff.

"That is what I mean by having 'fits.' For instance, I wanted to take the machine out last Saturday night. I had used it that morning and had no trouble whatever in starting and the same was true of it the same afternoon, just a few hours previous, so that during the course of the day I had started it no less than four or five times. Nothing short of a team of horses could have got that machine under way that evening and after a session of two hours at the end of which all three of us who were going on the trip were utterly worn out without getting so much as a cough out of the engine, we gave it up in disgust and with it the trip that we had planned."

"Hold on," ejaculated The Amateur, as the Expert Adviser started to say something. "Just let me get a little farther before you launch forth into explanations. You haven't heard half of my tale of woe. The next morning she started with a few turns of the crank and ran for ten or fifteen minutes and then stopped, started again and stopped, repeating that performance several times and then it became impossible to get her under way again, so she was pushed back into the barn and not touched again until that evening. Result, an immediate start. But after running for about fifteen minutes she again stopped but there was no trouble in restarting. We made the trip we had planned for the night before—a matter of about twelve miles—with but one stop and that was caused by the trembler blade sticking. That was only a matter of a moment and we were going again better than before.

"About two hours elapsed between the time we stopped the engine and the time we essayed a start back, and more than an additional hour before we got a cough out of the engine for the return trip and then she started off just as smoothly as you please. But that return trip was a nightmare. My hands are sore still from twisting that crank and I ache all over. It was a trip on the installment plan with a vengeance. We made the first involuntary stop after having covered about three miles. But fortunately a few turns of the crank sent us off again and this time we made a little less than two miles and then there was trouble.

"We had put in about forty minutes in a vain attempt to get things going, but with absolutely no result. It was getting late and we were on a deserted road more than five miles from home and the prospect of walking it was not alluring. But the chance of having to put in a great deal more time in the same way and then walk anyway was less so. Nevertheless, we compromised by setting a time limit on it. It was then a little after ten and if things were not moving by ten thirty, it would be a case of shove the machine to the side of the road and walk.

"Fortunately, it didn't get quite to that extreme though things looked mighty black for the hand of the watch kept right on and we were not better off when it came within a few minutes of the time set than we were an hour previous. Then we heard a rig coming along in the darkness. Here was our salvation sure enough, for if you can hitch a horse to that machine and pull it a few feet, throwing in the high-speed clutch will invariably start the engine, and running it down hill will do the same thing—a nice peculiarity for you to explain.

"That buggy seemed an age reaching us, you can hear things such a distance away on a still, calm night, but finally we hailed it and brought it to a stop. It was a Scotchman and his wife, and we have been blessing his wife ever since, for our request for a tow of twenty feet or so to get started met with a curt refusal from him.

"'Ah hoven't een a wee bit rope wi' me,' was his explanation.

"And we hadn't either, but before the words were scarcely out of his mouth, his wife blurted out:

"'Why, Jock, there's the tie rope.'

"And 'Jock' had to give in, but he had other excuses to the effect that his horse was very young and very light and he didn't think it could move the machine. But I had the tie rope fast about our front axle by that time and the Scotchman's wife made him face about and back down toward us until we could do the same thing to the rear axle of the buggy. The first attempt was resultless and the Scotchman was again anxious to give up, but this time had the graciousness to offer to drive back to the nearest hotel, kept by his brother, by the way, and get us a horse that would pull us. If it hadn't been for the partner of his joys and sorrows I don't know whether we would have succeeded in persuading him or not, but under her prodding he gave us another pull and it was with a great sigh of

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relief that we heard the engine give a cough and start up in full vigor.

"We did the mile and a half between us and the next town and a half mile beyond it before the inevitable happened again. This time a few minutes sufficed. The next installment was probably between two and three miles. We came to a dead stop right at the foot of a steep, rocky hill, but easily started again. It only took about a hundred feet of that hill to show that she couldn't possibly get over it without tightening the low gear band—planetary, you know. And she stopped again while this was being carried out, but here again fortune favored us. We managed the hill in good shape and stopped once more right at the top which again was fortunate, as there is an equally bad one on the other side and all we had to do was to coast and throw in the high speed gear. This last installment landed us within fifty feet of the barn at home and rather than toil at the crank any more we pushed her the rest of the way. Next day she started and ran without any trouble. The low level of the fuel may have accounted for the more frequent stops toward the end of the run the night before, as the tank was almost dry when examined the next morning, but it was certainly not responsible for the hour's hard work in starting on the return trip or the stops during the first part as there was then fully a gallon in the tank and I've run that engine steadily when there was hardly a quart in it.

"That's what I mean by fits. How do you account for such erratic behavior?"

"H'h. I see you'e just like the majority the them," began The Expert. "Think that your troubles are the worst ever. Never were anything like them or anythink quite so bad as what you have been up against. That's the way it affects most of them.

"Of course, your trouble seems most serious to you because you're the one that has to bear the brunt of it. Wait until you get up against some other poor fellow sufferer and see how easily you can bear his troubles. They will slide off you just like water off a duck's back, and you will start in to give him advice just as I am doing now.

"Of course, as I said before, this business of making long distance diagnoses is an affair in which the doctor must take the patient's story entire and assume it to be true in every respect. It is the only thing he has to go by, so with all due deference to your ability I will accept your opinion that the stoppage was due in every instance to the carburetter and proceed on that assumption.

"Granting that your engine will start with a few turns of the crank and continue to run for ten or fifteen minutes steadily it shows that for that time at least everything is in working order. Then if there is a sudden stop which cannot be traced to the ignition system, as a break in that is more conducive to sudden stops than failure of the carburetter, it would look as if there must be either water or dirt in the gasolene. A drop of water or a chunk of sediment will often lie quiescent in the bottom of the float-feed chamber for quite some time and then suddenly it will be drawn into the needle valve and choke it for the time being. The result is that no more gasolene is allowed to pass and the engine stops just as if it had been 'killed' by the breaking of a wire or something similar.

"Probably in three cases out of five, whatever caused the stoppage drops back into the gasolene and has settled to the bottom of the feed chamber before you have had a chance to try the crank and, of course, the engine starts again without any trouble. The two cases where you find it next to impossible to start by hand are the ones where the substance becomes wedged in the needle valve opening and what little suction the piston generates by being turned over with no compression is not sufficient to clear it. Right there is where the explanation of the efficiacy of a tow or a steep hill in starting comes in. You can't turn the engine over quickly under compression, can you?

Not much, it's all you can do to turn it over at all that way.

"Well, running it under compression generates a very powerful suction. You can feel it very plainly even a few inches away from the main intake of the carburetter and that is what clears the jet and enables you to start again. How is that?

"By gum, I think you're right, for come to remember I don't believe the plug of that carburetter has been taken out in six months and it may be simply clogged with dirt for all I know. It sounds reasonable anyway, and I'll try it on and let you know."

Jones Gets Gold Medal.

That a prophet should be without honor among his own people, is a matter of traditional expectation, yet is sometimes happens that one who is not exactly a prophet gains more honor at home than abroad.



Such is not the case, however, with the manufacturers of the Jones Speedometer, which aside from its prestige at home, scored a marked triumph in the recent tire, lamp and speedometer trials conducted by



the Automobile Club of Great Britain. In this, despite the numerous competitors, it received first award for the 2,000-mile trials, in token of which it was granted a gold medal, copies of the reverse and obverse of which are here shown. In this case, the honor received abroad, merely reflects an endorsement of the sentiment in which it is regarded here.

"Lamps" for the Motor Dog.

This is "goggle season" with Charles E. Miller, the Reade street purveyor of everything pertaining to the automobile. He has



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The Week's Patents.

826,416. Tire. Frederick Mesinger, New York, N. Y. Filed Nov. 16, 1905. Serial No. 287,574.

Claim.—1. A tire provided with an inflation-tube, a surrounding split inner tube, and a pair of split spirally-wound strips intermediate the inner and outer tubes, the tubes and strips being split in alinement with each other, substantially as specified.

826,641.. Tire for Motor-Cars. Isador Clifford, London, England. Filed Aug. 4, 1905. Serial No. 272,748.

Claim.—1. In a rubber tire the combination of a plurality of blocks on the tread, metal frames inclosing and supporting said blocks, chain mail, and means for connecting said mail to the frames and to the to the frames and to the wheel.

828,352. Internal-Combustion Engine for Liquid Combustible. Gustav Trinkler, Linden, near Hanover, Germany. Filed Oct. 15, 1903. Serial No. 177,221.

Claim.—1. In internal-combustion engines, the combination with the combustion-chamber of an air-chamber, a chamber for the reception of the fluid combustible, both these chambers communicating with each other and with the combustion-chamber, piston adapted to move in the air-chamber, the face of the piston directed to the combustion-chamber having a larger sectional area than the opposite face, means for locking the piston during the compression-stroke of the working-piston, and means for releasing and displacing the same about the end of the compression-stroke; all substantially as set forth.

828,354. Spring-Wheel. Joseph C. Warner, Corbin, Kans., assignor of one-half to Lafe Burger, Corbin, Kans. Filed Dec. 4, 1905. Serial No. 290,290.

Claim.—1. In a wheel, the combination of an outer rim, spokes connecting the outer and inner rims, a plate fitting loosely against the inner rim, members slidably mounted upon the spokes, connecting means between the slidably mounted members and the plate, and springs interposed between the inner rim and the slidably-mounted members.

828,402. Device for Securing Cross-Pins in Pistons. Harry M. Hart, Philadelphia, Pa., assignor of one-half to James G. Heaslet, Philadelphia, Pa. Filed Nov. 14, 1903. Serial No. 181,161.

Claim.—1. A hollow piston having bearings for a cross-pin and an annular slot formed in a bearing, in combination with a pin supported in the bearings and an elastic split ring sprung into the slot to form an abutment for the pin.

828,482. Support for Vehicle-Canopies. Herbert L. Johnston, Troy, Ohio, assignor to The Hobart Electric Manufacturing Co., Troy, Ohio. Filed Feb. 1, 1906. Serial No. 298,912.

Claim.—1. In a support for vehicle-canopies, a runner, a sicket having a stem projected into said runner and an annular portion or flange forming a support for the runner, a spring on the interior of the runner having its lower end terminated in a shoulder lying within the socket and below said annular portion of flange, and a supporting-arm projected into the socket and engaging the lower end of said spring to hold it in contact with the annular portion or flange, and means for binding said supporting-arms within the socket.

828,610. Double-Recoil Take-Up. Frank Knight, Derby, Conn. Filed Dec. 26, 1905. Serial No. 293,341.

Claim.—1. A recoil take-up comprising a hub adapted for attachment to a moving part and a rod having a sliding spiral engagement with said hub and at one end an expansible ball and a socket in which the ball is seated and which is adapted for attachment to another moving part, so that in use said rod and hub will have longitudinal movement relatively to each other and the ball will be oscillated in the socket.

828,621. Axle. Horace E. Martin, Athens, Ga. Filed Oct. 5, 1905. Serial No. 281,424.

Claim.—1. In an axle, the combination, with a body portion of wood having a longitudinal channel, of a metallic bar T-shaped in cross-section and having its web inserted in the said channel, an axle-skein inclosing the end portions of the said body portion and bar, and a packing of soft material interposed between the said body portion and the head of the said bar inside the said skein.

828,647. Magnetic Clutch. Lucius T. Gibbs, Hempstead, N. Y. Filed Aug. 2, 1905. Serial No. 272,296.

Claim.—1. In a magnetic clutch, the combination of one or more friction-disks arranged transversely about a power-driven shaft and connected with a load to be driven, one or more friction-disks arranged transversely about the same shaft and connected therewith, the first-mentioned disk or disks being arranged alternately with the last-mentioned, a plurality of radial armature-levers arranged to swing longitudinally of the shaft, and adapted to press the said friction-disks together, and electro-magnetic means for actuating the armature-levers, as set forth.

828,648. Reversible Driving-Gear. Lucius T. Gibbs, Hempstead, N. Y. Filed Aug. 2, 1905. Serial No. 272,297.

Claim.—1. The combination of a rotatable shaft, a pair of gears mounted to rotate on the shaft, means for rotating the said gears simultaneously and in opposite directions to each other, means intermediate to the gears and movable longitudinally of the shaft for connecting one or the other with the shaft, electromagnets adjacent to and on opposite sides of the said connecting means to act directly upon the same, and means for energizing either magnet at will independently of the other, whereby the shaft may be driven in either dirction, as set forth.

828,656. Jacketed Motor-Cylinder. Tony Huber, Billancourt, France. Filed Aug. 8, 1904. Serial No. 220,018.

Claim.—A water-jacketed cylinder for explosive-engines comprising the combination with a cylinder and a cylinder-head, each of which is provided with a flange, of an expansible and contractible jacket surrounding said cylinder and abutting against the said flanges, collars engaging that portion of the jacket which abuts against the flanges, means extending through the flanges, jacket and collars for fixedly securing the jacket in position, said jacket having an inlet-opening and further provided with beads adapted to overlap part of said collars, and an inlet-pipe connected to and communicating with the opening through the jacket.

828,701. Tire-Cover. William A. Allen, New York, N. Filed Jan. 31, 1906. Serial No. 298,880.

Claim.—1. A covering for vehicle-tires, constructed of a weatherproof material consisting of connected parallel strips, one for the inner face of the tire, one for each of the side faces of the same, one for the tread, and a transversely-divided nap connected with the inner facing-strip, and adapted for lapping engagement with one of the side strips, one portion of the flap being arranged to extend beneath said side strip and the other portion outside said side strip, and means for securing the flop to the side strip with which it engages.

828,713. Motor-Vehicle. Benjamin F. Coffman and Louis B. Cherry, Lincoln, Ill. Filed Jan. 13, 1906. Serial No. 295,931.

Claim.—1. In a motor-vehicle, in combination, a frame, a traction-wheel, a shiftable engine movably supported on the frame and comprising a crank-box fixed thereto, a transverse engine-shaft mounted in and carried by said crank-box, a flexible endless belt between said shaft and said wheel and tightened and loosened by shifting said engine, and manually-controlled engine shifting and locking means comprising a rock-shaft having a push and pull link connection to said crank-box, and an operating-lever, substantially as described.

828,749. Changeable-Speed Gearing for Automobiles. William A. Klingberg, Elmo, Kans. Filed Jan. 29, 1906. Serial No. 298,523.

Claim.—In power-transmitting gearing of the character specified, the combination of a shaft, a gear element loose thereon, a clutch coöperating with said gear element and the shaft to throw the parts into and out of clutched engagement, a reversing mechanism comprising a train of gearing two of its elements loose upon said shaft, a clutch for throwing one of said loose gear elements into and out of clutched engagement with the first-mentioned gear element, and a clutch for throwing the other loose gear element into and out of clutched engagement with the said shaft.

828,841. Locking-Band for Pneumatic-Tire Covers. James Cottrell, London, England, assignor to Alfred Henry Smith, London, England. Filed Dec. 30, 1902. Serial No. 137,161.

Claim.—1. A discontinuous locking-band for securing the cover of a pneumatic tire to the rim of a wheel in which the butting ends of the bands are stepped and the surfaces thereof cut obliquely both to the central plane of the wheel and to a radial plane passing through the axis of the wheel, and to one end of which a sole-plate is secured.

828,863. Automobile-Wheel. Archibald J. Robertson, Chicago, Ill. Filed Oct. 6, 1905. Serial No. 281,645.

Claim.—1. The combination, to form a vehicle-wheel, of an inner and outer wheel, both rotating in the same plane with differential speeds and separate axes which bring the rim of the outer wheel always in contact with the rim of the inner near the wheel base-line, a pneumatic tire on the inner wheel, a duct through the hub of the said inner wheel, an inflating-tube leading therefrom to the pneumatic tire, and a valve carried by said hub at the entrance to the duct, and an elastic tire upon the rim of the outer wheel.

828,867. Cylinder-Cooling Device for Gasolene-Engines. Henry Stoltenberg, Davenport, Iowa, assignor to White Lily

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Washer Company, Davenport, Iowa, a corporation of Iowa. Filed Aug. 11, 1905. Serial No. 273,815.

Claim.—1. In an engine the combination with a fly-wheel; of a circular flat band secured on and extending around the periphery of said wheel and having downwardly flanged edges; a series of diagonally-disposed vanes secured to the outer surface of said band; angle-shaped clamping-strips secured transversely to said band near each end thereof; and means for clamping the ends of said band together.

828,893. Sectional Arm. William G. Marr, Springfield, Mass. Filed Oct. 9, 1905. Serial No. 281,887.

Claim.—1. The combination with a wheel of a rim of sections, each section having a piston or rod the head or outer surface of which supports a part of the tire, the rim-sections being arranged alternately with supports, each support having a spiral spring and means for bearing against the adjoining rim-sections.

828,925. Steering Device for Vehicles. John Morig, Black Earth, Wis. Filed June 12, 1905. Serial No. 264,791.

Claim.—1. The combination in a steering device for vehicles, of a two-armed lever arranged at right angles to and pivotally connected with the frame of the vehicle at its longitudinally center, a gear-segment connected at its center with one of said two-armed lever, a worm-gear meshing with the teeth of said gear-segment, an operating-shaft connected with said worm-gear, means for rotating said shaft by the manual act of the operator, and means for communicating motion from the respective ends of said two-armed lever to the guiding-axle of the vehicle, all substantially as and for the purpose specified.

829,003. Clutch. Frank L. Eager, Waterbury, Conn. Filed Feb. 24, 1905. Serial No. 247,103.

Claim.—1. A driven member, a driving member mounted to rotate freely thereon and including a disk with a flange constituting the rim thereof and forming a recess, a spider keyed to the driven member and located within said recess and adapted to engage one of said members, a lever for operating the friction device, a cam-plate having cam-grooves to engage said lever and forming a cover to completely inclose said recess, and means for operating the cam-plate.

829,006. Steering Device. George A. Gemmer, Marion, Ind. Filed Dec. 29, 1905. Serial No. 293,785.

Claim.—In a steering-gear, a rock-shaft provided with a central aperture and pivoted seats at either end thereof, an arm rigidly secured to said rock-shaft, connections between said arm and the wheel of a vehicle, means for rocking said shaft comprising a hollow rod provided with an interiorly and an exteriorly reversely threaded head, collars adapted to be threaded on said head and provided with extensions to bear upon the pivoted seats, means for turning said rod whereby a swinging movement is given said arm and a conduit passing through said apertured rock-shaft and rod to conduct other controlling means for the vehicle directly to the operator, substantially as described.

829,037. Wheel. George Schrépel and Ellé J. L. Broux, Roubaix, France. Filed Nov. 11, 1905. Serial No. 286,784.

Claim.—1. In a vehicle-wheel, an inner wheel, a free felly encircling said inner wheel, radially-sliding pistons guided by said inner wheel, cylinders carried by said inner wheel within said pistons adapted to bear the inner periphery of said free felly consecutively when the wheel is in use, means adapted to force said pistons outwardly, means to limit the extent of outward movement of said pistons, and annular side cheeks fixed to said free felly embracing said inner wheel to limit relative lateral movement of said free felly and inner wheel, substantially as set forth.

829,068. Changeable Gear. William R. Fox, Grand Rapids, Mich. Filed Oct. 24, 1904. Serial No. 229,793.

Claim.—1. In a changeable-speed gear, the combination of the casing or support; a driving shaft; a driven shaft; a cam-shaft parallel with said shafts; a series of gears of various sizes on the driving-shaft; corresponding gears alined therewith on the driven shaft, and of various proportions to the gears on the driving-shaft; cams on the said cam-shaft corresponding to each of the said gears, having suitable hubs, the said cams having depressions out of alinement with each other, and each of said cams having a pin in its face, diametrically opposite the depression thereof; forked levers with suitable hubs fulcrumed on the driving-shaft, one fork of the lever being provided with a pin on the periphery of its corresponding cam, and the other fork being provided with a projection for contacting with the pin on the face of the cam, to insure the actuation of the lever, as indicated;

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gears journaled on corresponding pins on the opposite ends of the said levers, meshing with the gears on the driving-shaft and adapted to be carried by said levers into engagement with the gears on the driven shaft; a lever with an adjusting-catch secured to the said cam-shaft, whereby the same can be adjusted in various positions, for throwing the levers to throw the successive speed of the driven shaft can be changed for the purpose specified.

829,128. Power-Transmitting Device. Thomas L. Sturtevant, Quincy, and Thomas J. Sturtevant, Wellesley, Mass. Filed Feb. 23, 1906. Serial No. 302,532.

Claim.—1. In a power-transmitting mechanism, the combination with a driving-shaft, of a rotary shaft or axle to be driven therefrom, and centrifugally-controlled coupling means between said power-shaft and said driven shaft or axle, said coupling means comprising a ratchet or grip device constructed and arranged to permit the said driven shaft or axle to overrun or turn faster than it is driven by the said power-shaft and a flywheel rotating with said driving-shaft and within which said coupling means are inclosed, said flywheel being provided with bearings for said driven shaft or axle so that the latter may turn in said bearings when overrunning said driving-shaft.

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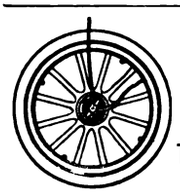
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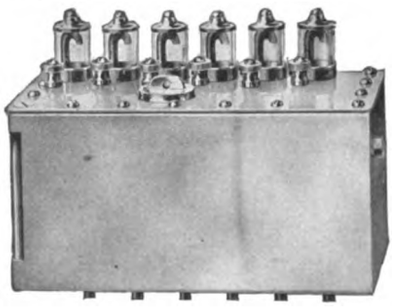
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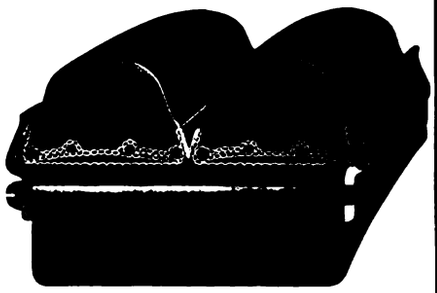


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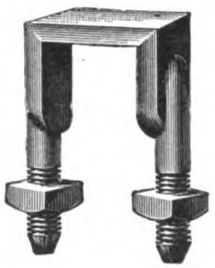
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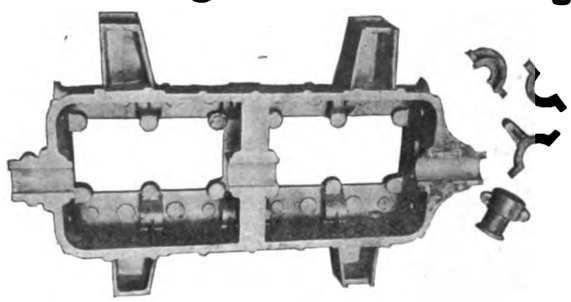
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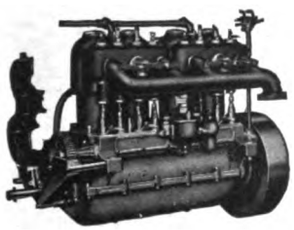
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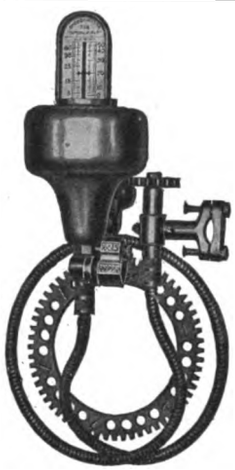
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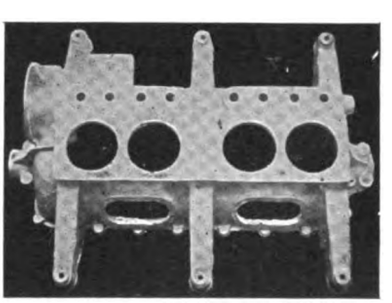
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THE A-Z CO. **RADIATORS** THE A-Z CO.
HOODS, TANKS, MUD GUARDS, MUD APRONS, METAL DASHES, MUFFLERS, METAL HAMPERS, SPROCKET STEPS AND COVERS, ALUMINUM BRAZING, REPAIRING OF ALL KINDS IN OUR LINE.
THE A-Z CO.,
Office and Works: 527-529 W. 36th St., NEW YORK CITY.

THE
London Tops
Style
Durability
Quality



LONDON AUTO SUPPLY CO., 1233 Michigan Ave., Chicago

STANDARD ROLLER BEARING COMPANY
PHILADELPHIA, PA.
Manufacturers of Steel, Brass and Bronze Balls, Ball Bearings, Roller Bearings and Automobile Axles
Send for New Catalogue No. 16

TOURING CAR
THE F. B. STEARNS CO.,
CLEVELAND, OHIO, U. S. A.



THE NEW **EXCELSIOR**
(Self-Cleaning) is the Leader of Jump Spark Plugs for '06, the only plug that cleans itself of soot or oil without removing it from the engine or disconnecting the wiring.
THE EXCELSIOR SPARK PLUG CO., Inc.
Write for Bulletin Cleveland, Ohio



A. R. MOSLER
163 W. 29th St.
NEW YORK

"SPIT-FIRE" Plugs actually SPIT FIRE, while others spark only. Ask your dealer or write us for New Booklet of 1906 Mosler Ignition Outfits.

BUY A
WAYNE
and save all arguments

"DIAMOND" CHAINS
Outnumber, Outwear
and are Stronger than Others.
Write for Catalogue.
Diamond Chain & Mfg. Co.,
INDIANAPOLIS, IND.

Automobile Material and Supplies.
We manufacture the
Climax Motor Lamps, Climax Auto Cells.
Send for Catalogue.
SIBLEY & PITMAN,
26 Warren Street, NEW YORK.

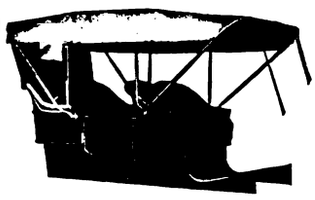
ALUMINUM BODIES.
J. M. QUINBY & CO.
EST. 1834.
Carriage Builders, NEWARK, N. J.

Orient Friction-drive Buckboard.



Price, $400.
Agents wanted.
WALTHAM MFG. CO.
Waltham, - Mass.

Springfield Top
(Pat. 1895)
ALUMINUM BODIES.
Springfield Metal Body Co.,
386 Birnie Avenue, Springfield, Mass.





In the Glidden Tour

the cars equipped with Diezemann Shock Absorbers were not those that finished with broken springs, broken axles, or bursted tires. The Diezemann Shock Absorber insures proper spring control and prevents accidents. It is an improvement over all other forms of shock absorbing devices. The exclusive self-lubricating features places this appliance in a class by itself.

Diezemann Shock Absorber Co.
1307 Hudson Street, HOBOKEN, N. J.

THE NEW HOTCHKISS
Built like a gun by gunmakers.
THE DE LEON
A French Car at American Price.
ARCHER & CO.
1597 Broadway, New York

Acme
From Steel Bar to Finished Car

30 H. P. 5 Passenger, $2,750.
45 H. P. 7 Passenger, $3,500.
CATALOGUE MAILED ON REQUEST.
ACME MOTOR CAR CO., Reading, Pa.

GAITHER-OWEN
The One CARBURETER That Gives
COMPENSATION WITHOUT COMPLICATION
BOOKLET FOR THE ASKING
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The Baldwin Chain Company
— MAKE —
Automobile Chains, Sprockets, Spur and Bevel Gears.
—
Baldwin Chain & Mfg. Co.,
Worcester, Mass., U.S.A.

Keep Your Battery In Condition



by installing an APPLE BATTERY CHARGER on your car. A perfect dynamo that charges your battery right on your motor car or boat, as fast as the battery discharges. Insures fat, hot sparks to meet every charge. Write today for full information.
THE DAYTON ELECTRICAL MFG. COMPANY, 81 St. Clair St., Dayton, Ohio

THE MOTOR WORLD PUBLISHING COMPANY,
154 Nassau Street, New York.
Enclosed find $2.00 for which enter my subscription to
The Motor World
for one year, commencing with the issue of_____
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Stamped Parts

FOR AUTOMOBILES.

COLD PRESSED WORK

In Steel, Brass and Aluminum.

We make a specialty of difficult drawing in heavy steel and in stampings to replace malleable iron and brass castings.

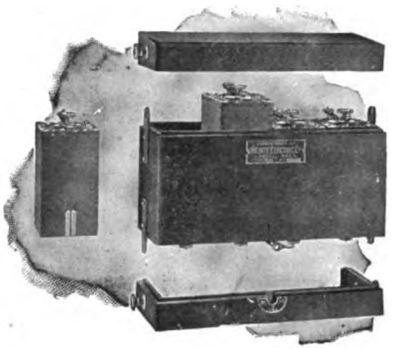
THE CROSBY COMPANY,

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Heinze Motor Car Coils

WILL INCREASE THE POWER OF YOUR ENGINE FROM 10 TO 15%.

Are the most thoroughly constructed coils on the market producing the hottest spark and having the most rapid vibrator.



ARE GUARANTEED AGAINST BURNING OUT.

Send for our complete catalogue Sup. No. 12

Manufactured by

HEINZE ELECTRIC COMPANY,

Factory, LOWELL, MASS.

COLUMBIA IGNITOR DRY CELL

BEST SERVICE



LONGEST LIFE

DESIGNED FOR IGNITION SERVICE

These cells are being used by AUTO OWNERS in preference to ALL OTHERS.

Described in Booklet "KINKS."

National Carbon Co.

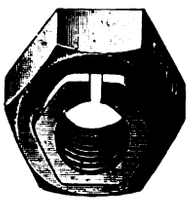
CLEVELAND, OHIO.

GRAY AND DAVIS

"Makers of Smart Automobile Lamps."

Be Sure Your Car is Equipped with Them.

AMESBURY, MASS.



NUT INSURANCE.

Columbia Lock Nuts will not shake off American made cars, neither will they shake off cars of foreign make. We are prepared to furnish Columbia Lock Nuts with Metric thread for French cars and Whitworth threads for English cars. Nuts that will not shake loose are an absolute necessity. More trouble and loss of life result from nuts working loose than from any other known cause.

COLUMBIA NUT & BOLT CO., Inc., Bridgeport, Conn.

—FORD—

FORD MOTOR CO.,

DETROIT, MICH.

Members A. M. C. M. A.

THE LAMBERT Famous Friction-Drive Car.

Models and Styles to Suit the Purchaser.

PLEASURE CARS, RUNABOUTS and TOURING CARS, and Lambert Patented Friction Drive COMMERCIAL TRUCKS. Prices $900 to $3000. Write for particulars.

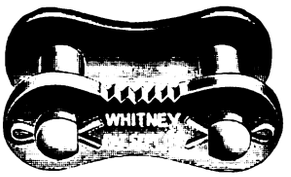
☞Some attractive agency propositions not yet closed.

THE BUCKEYE MFG. CO., Anderson, Ind., U. S. A.

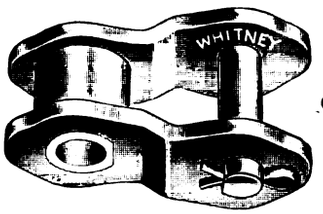
Members A. M. C. M. A.



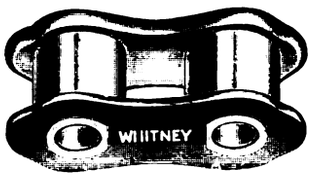
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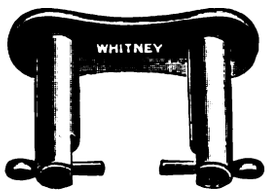
Connecting Link



OFFSET LINK



Assembled Center Block

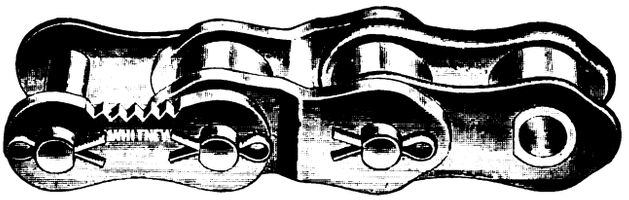


Side Link with Rivets Assembled



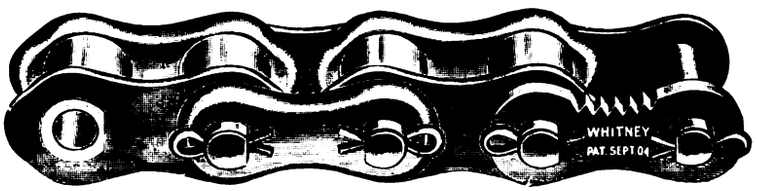
Side Link Plain

"Whitney" Offset Links for use when it is required to shorten or lengthen a chain only one Link.

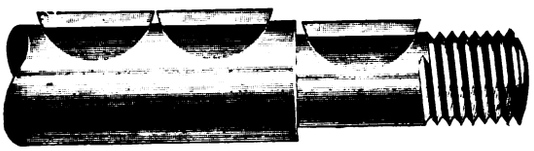


Against claims made by Competitors, we submit the following list of Motor Car Manufacturers using "WHITNEY" ROLLER CHAINS and STANDARDS. Is it not time for everyone to admit that "WHITNEY" STANDARDS for ROLLER CHAIN dimensions are now the American Standards?

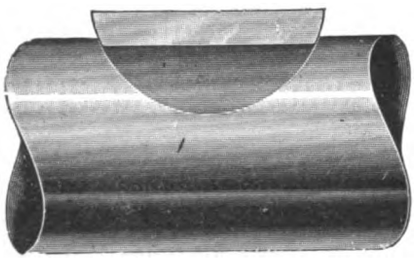
"ADAMS-FARWELL" "ADAMS VEHICLE CO." "AMERICAN MOTOR TRUCK" "AUTO-CAR EQUIPMENT" "BAKER" "BERKSHIRE" "BIDDLE-MURRAY" "CADILLAC" "COLUMBIA" "CHAMPION (McCrea)" "CROWN" "CRAWFORD" "COLUMBUS BUGGY CO." "ELWELL-PARKER" "FORD" "FRANKLIN" "GAETH" "GALE" "GROUT" "HEWITT" "THE HOLMES" "IROQUOIS IRON WORKS" "KNOX" "LAMBERT" "LEAR" "MATHESON" "MACK BROTHERS" "MITCHELL" "MOLINE" "NEW YORK MOTOR TRUCK" "OLDS" "PACKARD" "RAMBLER" "RAPID" "REO" "SIMPLICITY" "STEARNS" "THOMAS" "TOURIST" "WAYNE" "WESTERN MOTOR TRUCK" etc.



Detachable Type Patented









The Woodruff Patent System of Keying has been adopted by the Leading Manufacturers of Motor Cars, Machinery, etc. It is more mechanical, more efficient and also a great labor saving invention.

We carry over 50 sizes of KEYS and CUTTERS in stock for immediate delivery.

THE WHITNEY MFG. CO.,

Hartford, Conn.

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MORGAN & WRIGHT WANT ADS.

No. 1

AUTOMOBILISTS WANTED

WANTED—We want to get in touch with automobilists who are not satisfied with the tire service they are getting. Especially do we invite correspondence from those who have come to entertain the idea that "tires are the ouly uncertainties in automobiling."

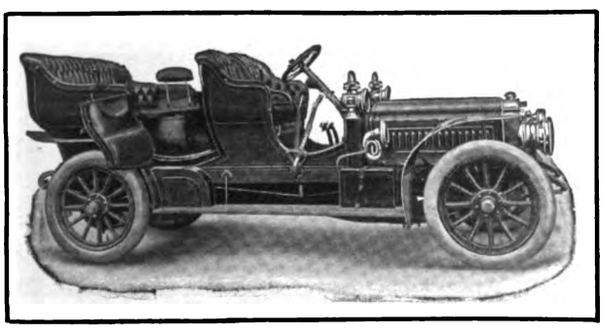
MORGAN & WRIGHT TIRES

are a positive contradiction of this attitude and we covet the opportunity of proving it to motorists who are open to conviction. Address Auto Tire Department.

MORGAN & WRIGHT, CHICAGO

NEW YORK SYRACUSE BOSTON PHILADELPHIA CLEVELAND DAYTON DETROIT MINNEAPOLIS ATLANTA ST. LOUIS KANSAS CITY DENVER LOS ANGELES SAN FRANCISCO PORTLAND

Proving It Now



The Magnificent New

1907

THOMAS FLYER

has been at work for weeks demonstrating itself the most wonderful achievement of the great Thomas Factories.

News soon that will arouse your enthusiasm.

Look forward all you owners who have rejoiced in the Thomas this season to a greater Thomas soon to be disclosed.

The E. R. Thomas Motor Co.

1416 Niagara Street, Buffalo, N. Y.

Members Association of Licensed Automobile Manufacturers.

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TO SELLERS AND USERS

OF

CLINCHER TIRES

We have commenced and are vigorously prosecuting suits for infringement of our patents against the Pennsylvania Rubber Company and the Michelin Tire American Agency, Inc., on account of the sale of Clincher tires.

The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J Patents:

G & J Tire Co.
Hartford Rubber Works Co.
Morgan & Wright.
B. F. Goodrich Co.
Diamond Rubber Co.
Goodyear Tire & Rubber Co.
Fisk Rubber Co.
International Automobile & Vehicle Tire Co.
Continental Caoutchouc Co.

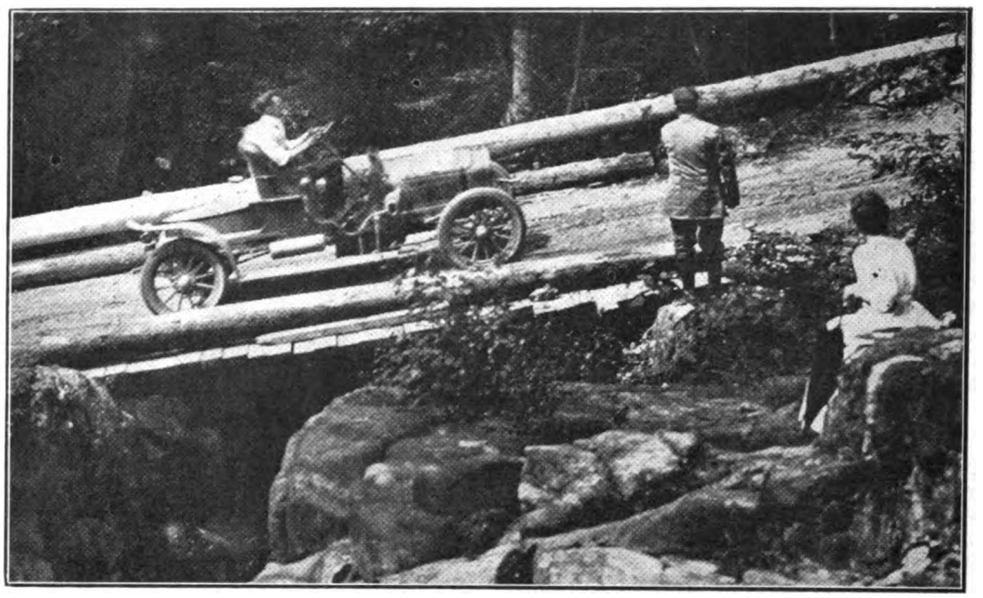
G & J TIRE CO.

Indianapolis, Ind.

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PREMIER

WINS AT CRAWFORD NOTCH



The above photograph illustrates the stock Premier car, 24 H. P., winning the Crawford Notch Hill Climb at Bretton Woods, August 3.

This car has been in daily service all season, and immediately preceeding the Hill Climb was driven over 700 miles over the road without an adjustment, and defeated all cars in its class.

The superb springs upon which the car is regularly mounted permits of great ease in riding, and protects the mechanism against such injury as usually accrues to cars with ordinary spring suspension, when driving over rough roads.



Air Cooled

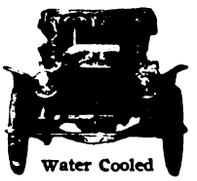
Handsome, stylish, fast, easily controlled, wonderfully economical in point of maintenance, with tire wear reduced to a minimum.

No car built in America offers the value to be obtained in the Premier, The Quality Car.

Send for catalogue S and other literature.

PREMIER MOTOR MFG. COMPANY, Indianapolis, Ind., U. S. A.

Members American Motor Car Manufacturers' Association.



Water Cooled

GLIDDEN 100% "Firestone"

Springfield, Mass., Aug. 8, 1906.

FIRESTONE TIRE & RUBBER CO.,
Akron, O.

Dear Sirs—Replying to your inquiry as to the condition of the Firestone tires, with which the Glidden Tour Baggage Truck was equipped, would say that they did not cause us one minute's delay and after the trip of 2,000 miles, show very little wear.

Yours truly,
KNOX AUTOMOBILE CO.
C. H. Martin.

NO REPLACEMENTS NO LAYING-UP OF TRUCKS NO DELAYS

"Firestone" Tires Are Not the "Paper Talk" Kind

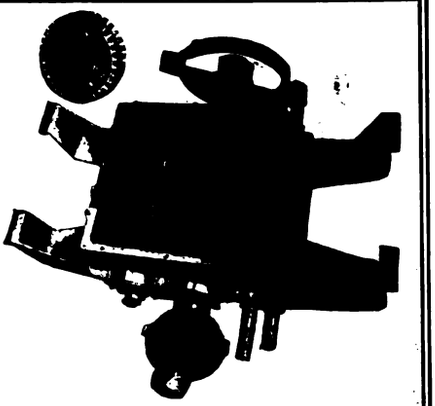
FIRESTONE TIRE & RUBBER CO., Akron, Ohio

BRANCHES

New York, West 58th St. cor. Broadway.
Boston, 9 Park Square.
Philadelphia, 211 N. Broad St.
Chicago, 1442 Michigan Ave.
St. Louis, 2226 Olive Ave.
Detroit, 240 Jefferson Ave.

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HAYNES TRANSMISSION



In the ordinary types of transmission where a change is made from high gear at 30 miles per hour, with a 2,750 pound car and a normal load, to 15 miles per hour on middle gear, the shock to the mechanism is equivalent to a verticle fall of 7 feet.

The Haynes Transmission assures ease and perfect safety in operation and entirely prevents the violent shock that would ordinarily be caused by changing from high to a lower gear.

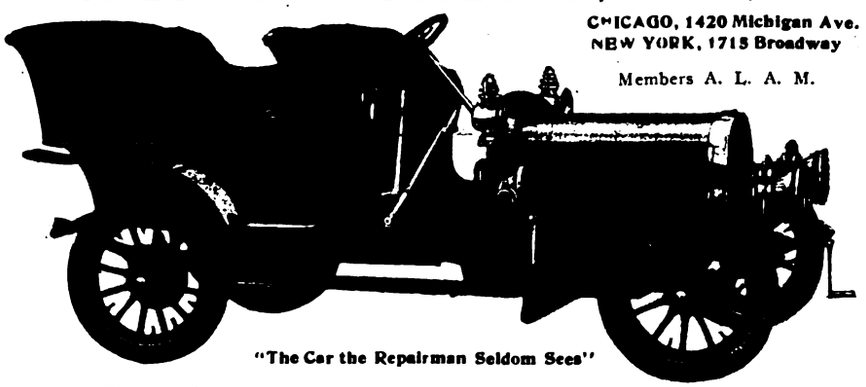
In the hub of the Master Gear is a ratchet and pawl device which permits the car to coast with middle or low gear engaged until the speed of the car and engine are equal, when the pawls engage and the engines take up the load. Change may be made from high to middle or low gear without any possibility of burring or stripping the gears.

The Haynes is the Highest-Powered Shaft- Driven Car Built. In requesting Catalogue, for prompt attention address Desk D 30.

HAYNES AUTOMOBILE CO., Kokomo, Ind.

CHICAGO, 1420 Michigan Ave.
NEW YORK, 1715 Broadway

Members A. L. A. M.



"The Car the Repairman Seldom Sees"

MODEL "R" FOUR-CYLINDER TOURING CAR.

Vertical roller-bearing engines. Cylinders cast separately, 5½x6 inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller bearings throughout. 108-inch wheel base. 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,700 pounds. Price, $3,500, f. o. b. Kokomo. Full equipment.

MODEL "O" FOUR-CYLINDER TOURING CAR.

Cylinders cast in pairs 4¼x5 in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250, f. o. b. Kokomo. Full equipment.



The GOODYEAR Detachable AUTO-TIRE ON Universal Rim

is so durable yet so lively—so difficult to puncture yet so easy to Repair—that it really

Cuts out Tire Troubles

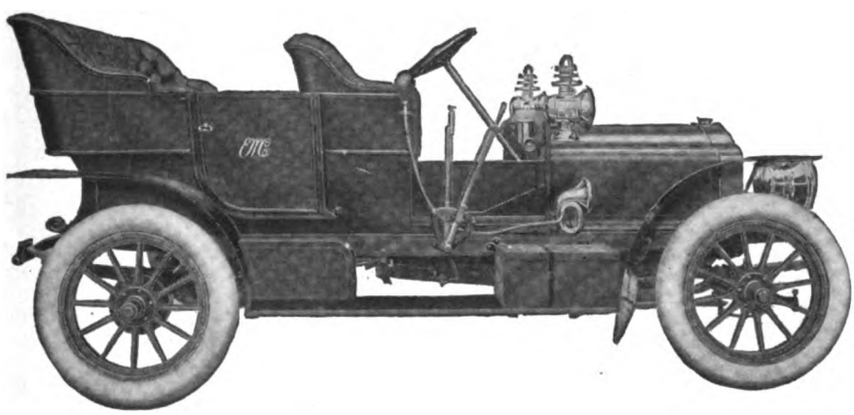
Call and see a demonstration at any of the following branches—it will convince you.

Boston, 261 Dartmouth St.
New York, cor. Sixty-fourth St. and Broadway.
Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
Buffalo, 719 Main St.
Denver, 220 Sixteenth St.
Detroit, 242 Jefferson Ave.

The Goodyear Tire and Rubber Co., Grove St., Akron, O.

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VITAL FACTS FOR PRESENT AND PROSPECTIVE ELMORE AGENTS



The recent Glidden Tour threw a blinding white light upon the superiority of the two-cycle engine. What every Elmore owner knew before was made known in a flash to thousands of others, who were astonished at the revelation.

The Elmore was the only car out of all the contesting cars, which came through the ordeal of this tour, and whirled back to the factory at Clyde absolutely without repair, replacement or adjustment of any kind. More than 2,000 miles and not so much as a spark-plug removed. Hills highly distressing to others were taken with quiet ease—a fresh, sweet-running, silent car, which ended as bravely and efficiently as it began.

An achievement fit to match its famous trip to New York, St. Louis and return on a repair bill of $.25. A mate to the perfect score in the non-stop 100-mile endurance run at Long Island in 1902. A mate to the endurance contest at Los Angeles. A mate to the perfect score in the Elgin-Aurora endurance contest, and mate to the every day performance of every Elmore ever built.

Did anybody see anybody tinkering with the Elmore at any of the controls in the Glidden Tour? No! Did anybody see anybody making a repair or an adjustment on the Elmore? No!

The two-cycle principle is the only live progressive principle in automobile construction—the only principle which possesses possibilities of growth, and the attainment of the highest ideals in automobile construction.

The agent who sells the Elmore can give the prospective buyer more strong talking points and more conclusive reasons why he should buy an Elmore, than can the representative of any other car in the world.

That is why the Elmore agency is such a valuable asset to any experienced energetic man who can secure it. That is why the Elmore factory has been unable to keep pace with the Elmore demand.

That is why it is so much easier for the Elmore agent to sell his entire allotment. That is why you should get in touch with the two-cycle idea. Find out more about it, convince yourself that we are right, when we say that it is the livest proposition in motor car manufacture to-day.

The Elmore Manufacturing Co.

1104 Amanda Street, Clyde, Ohio

Members Association of Licensed Automobile Manufacturers.

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THE MARMON

"A Mechanical Masterpiece"



Perfect Score—Glidden Tour.

The Easiest Riding Car in the World

That's a strong statement!

But perfectly truthful!

Due to the fact that the Marmon is the only car with really flexible running gear.

Read a description of that point and you'll understand why a rough road

Doesn't jolt the Marmon
Doesn't waste it's power
Doesn't strain its mechanism
Doesn't eat up its tires.

But take this tip:

Don't ever ride in the Marmon unless you are prepared to be disappointed with the motion of any other car.

In the Glidden Tour

The Marmon finished with a perfect score, without repairs or replacements.

And Marmon air-cooling (cylinders individually cooled) proved itself not only equal but the superior of water cooling. More convenient. More efficient.

Our 1907 Proposition to Agents

Will be the best thing in your territory.

Right now is the time to get in line for it. Write!

Nordyke & Marmon Co.

(Established 1851) Indianapolis, Ind.

Members American Motor Car Manufacturers' Association.

1907 POPE-HARTFORD MODEL L

PRICE, FULLY EQUIPPED $2,750

(Extension Top $150 Extra.)

No arguments in favor of an automobile can equal in forcefulness the results shown by a season's practical demonstration. Never since the beginning of the industry has a car in any class won within a single season such pronounced success and deserved popularity as the 1906 Pope-Hartford.

We are persistent and aggressive in matters of improvement, and have therefore **discovered points of vantage which have helped us to make the new Pope-Hartford Model L. the finest car of its kind in the world.**

SPECIFICATIONS:

MOTOR: Four cylinder; vertical: water cooled; all gears encased—valves all mechanically operated and interchangeable—25-30 h. p. Nickel steel crank shaft. Carburetor special design, very flexible. Jump spark ignition. Provision for magneto.
CLUTCH: Inverted cone type of large diameter.
TRANSMISSION: Sliding gear type with three speeds ahead and reverse.
DRIVE: Through a propeller shaft, pinion and bevel gear to the rear axle.
LUBRICATION: By a special oiler located under the hood, driven by belt from the cam shaft, with sight feeds on the dash.
FRONT AXLE: Solid forging made of special steel of the I-beam type.
REAR AXLE: Of solid steel running on large ball bearings in tubular sleeve.
STEERING: Strictly irreversible. Worm and sector type.
BRAKES: Two sets operated by foot pedals and side lever.
CONTROL: Ignition and throttle levers on top of steering wheel but not revolving with it. Gears changed by one hand lever.
FRAME: Armored, similar to our Model F frame.
BODY: Entirely new design, distinct and elegant. Double side entrance. Roomy tonneau with large doors.
HOOD: Improved design. Front guards overlapped and connected with the frame.
WHEEL BASE: Increased to 102". Tread 56".
WHEELS: 32 x 4" front and rear, running on large ball bearings.
EQUIPMENT: Full set of lamps, horn, tools and floor mats.

Pope Manufacturing Co.

HARTFORD, CONN.

New York: 1733 Broadway.
Boston: 223 Columbus Ave.
Washington, D. C.: 819 14th St., N. W.
Members Ass'n Licensed Automobile Mfrs.



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ANOTHER EXAMPLE OF SINGLE CYLINDER CADILLAC ECONOMY

Rolfe, Iowa. Aug 11, 1906

Cadillac Motor Car Co.
Detroit, Mich.

Gentlemen:- I thought I would report the expense account of my Model A Cadillac bought May 23-1904

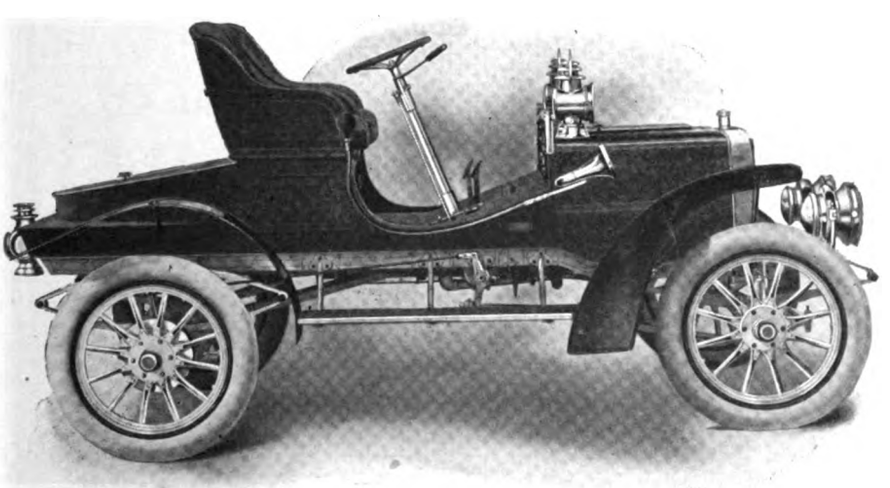
Replacing one bolt that I broke	.40 cts
Soldering pipes that froze and burst	.50
Two commutator springs	.20
Total	1.10

The above is total expense except tires But as far as the working of the machine is concerned have had no trouble after got a little used to it.

Respectfully
C. A. Grant

NORTHERN

2 CYLINDER RUNABOUT



DISTINCTLY DISTINCTIVE

The more a man knows about automobiles the higher his regard for the Sturdy Northern.

The same is true of anyone making an intelligent study of what constitutes genuine automobile worth.

The Northern has more practical features that appeal to an intending purchaser than any automobile on the market.

Next season's models will be out early—including, of course, the eagerly awaited Northern Air-Clutch Car.

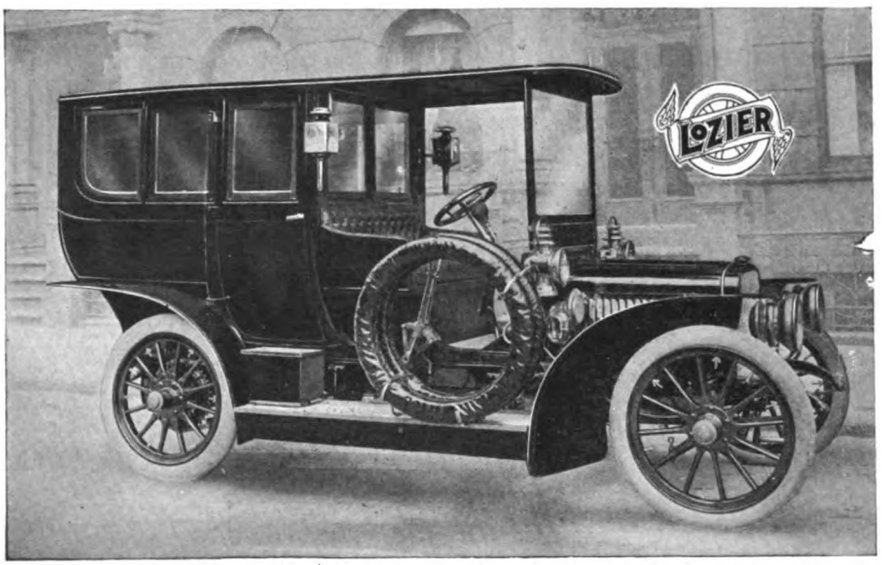
Better get in touch with us now.

NORTHERN MOTOR CAR CO., Detroit, Mich.

Members Association of Licensed Automobile Manufacturers.

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1907 LIMOUSINES 1907



LOZIER 40 H. P. LIMOUSINES READY FOR OCTOBER DELIVERY

Orders now booking from advance Plans and Specifications

THE LOZIER MOTOR COMPANY

Member Association of Licensed Automobile Manufacturers.

55TH STREET AND BROADWAY, NEW YORK CITY

Agents: —Sid Black Automobile Co., Cincinnati **Martin & Hart, Philadelphia** **Geyler & Levy, Chicago** **Myronda Motor Car Company, St. Louis**

Mr. Manufacturer, Jobber, Dealer and Owner

There is a reduction in chain prices for 1907. Get our new prices on the strongest chain in the world; the Brampton chain, manufactured by Brampton Bros., established since 1852. Also new prices on horns, tire irons, lamp brackets, jacks, etc. Let us figure with you.

THE BRAMPTON



Which is made of self-hardening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

The matter of repairs and replacements is simple.

YOUR CHOICE.

The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars.

CHAS. E. MILLER,

MANUFACTURER, JOBBER, EXPORTER AND IMPORTER,
HOME OFFICE: 97-99-101 READE ST., NEW YORK CITY.

BRANCHES: New York City—924 Eighth Ave.
Philadelphia, Pa.—318-320 N. Broad St. **Boston, Mass.—202-204 Columbus Ave.**
Cleveland, O.—406 Erie St. **Detroit, Mich.—227½ & 229 Jefferson Ave.** **Buffalo—824 Main St.**

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BUGGY TIRES ON A LOCOMOTIVE

They wouldn't last long, would they?

Yet you have the same proposition, slightly modified, when you equip a motor truck with one of the ordinary tires offered for truck work.

When motor trucks were put in service, rubber tire makers figured from what they had (solid tires for carriages) to what they wanted (satisfactory motor truck tires).

And the tires built for motor trucks were mostly enlarged buggy tires. They failed to make good. Then came

Diamond

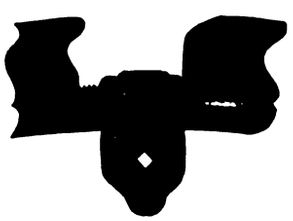
Wire Mesh Base Construction

It is scientific—correct—built for the work to be done. It is different—and successful.

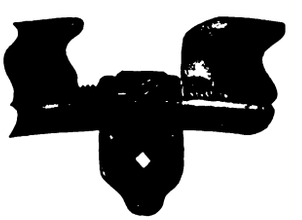
Our catalogue is yours for the asking.

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

NEW YORK—78 Reade St.
NEW YORK—1717 Broadway.
BOSTON—174 Columbus Ave.
PHILADELPHIA—304-306 N. Broad St.
BUFFALO—715 Main St.
DETROIT—258 Jefferson Ave.
ST. LOUIS—3966 Olive St
CHICAGO—1523-31 Michigan Ave.
CLEVELAND—1514 Euclid Ave.
OACLAND—108-110-112 Telegraph Ave.
MINNEAPOLIS—503 Second Ave., S.
DENVER—1735 Arapahoe St.



Pioneer Steel Wheel and Universal Rim Manufacturers of the World



Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

SOLE MANUFACTURERS OF THE

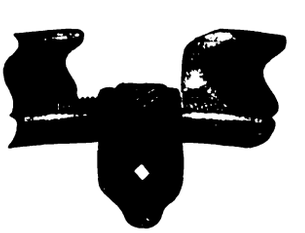
Hartford Universal Rim

For DUNLOP and CLINCHER TIRES

Used Also By Two Other Leading Tire Factories



The four cuts in this advertisement show the new turnbuckle to be fitted, for 1907 and thereafter, to all Hartford Tires, both Dunlop and Clincher type. We make it!



Midgley Manufacturing Company

COLUMBUS, OHIO

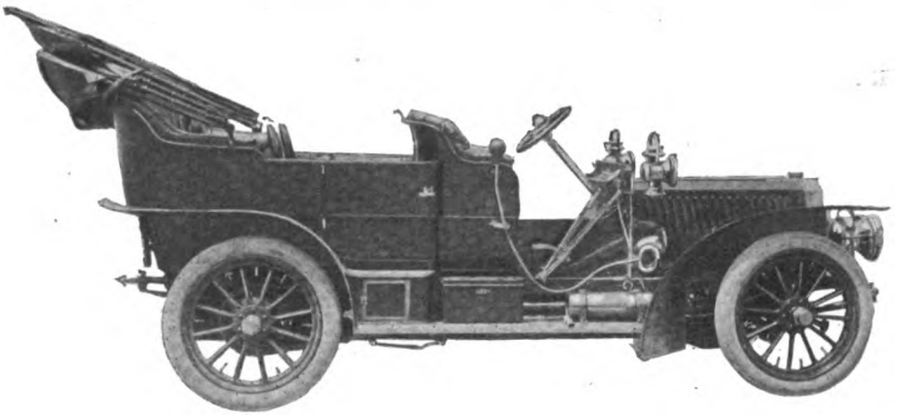
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Matheson Touring Cars

IMMEDIATE DELIVERIES

The value of this high-grade American product depends SOLELY upon its quality and workmanship. The latest practical improvements embodied in its construction gives THE MATHESON a superiority which is widely recognized.

40-45 H. P. $6,000



60-65 H. P. $7,500

LEADING FEATURES

Motor—All valves on top which never need re-grinding. Chrome-nickel steel in transmission gears and shafts.
Ignition—Make-and-Break, with magneto, which eliminates the use of spark plugs and vibrating coils.
Speed—60 miles an hour guaranteed. EVERY CAR IS FULLY EQUIPPED

SEND FOR ILLUSTRATED CATALOGUE

THE MATHESON COMPANY OF NEW YORK, 1619 Broadway, New York

Philadelphia Branch—The Bellevue-Stratford Garage.

LICENSED UNDER SELDEN PATENT

Locomobile

Wins Endurance Run of the Albany, N. Y., Automobile Club

Joseph B. Taylor, driving his 30-35 H.P. "Locomobile," won the silver cup donated by Col. A. J. McClure. Over 540 miles through New England without a stop or adjustment.

Also W. L. L. Peltz, driving a 30-35 H.P. "Locomobile," secured honorable mention. 19 competing cars. Two of them "Locomobiles."

Send for "Locomobile" Catalogue.

The *Locomobile* Co. of America

BRIDGEPORT, CONN.

Members Association Licensed Automobile Manufacturers.

National

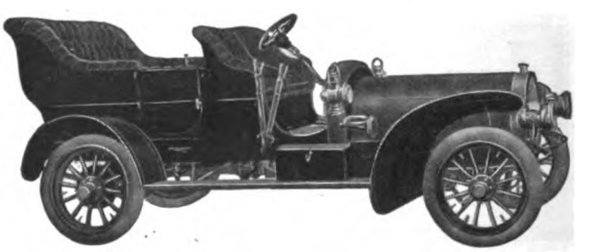
WORLD'S RECORDS

FOR

1000 Miles and 1094 3/16 Miles in 24 Hours

Made Nov. 17th, 1905

STILL STANDS UNEQUALLED.



4 Cyl. 35-40 H. P. $3000. 6 Cyl. 50-60 H. P. $4000.

NATIONAL RELIABILITY AND ENDURANCE ARE HARD TO BEAT.

Write for Particulars.

WATCH FOR THE ROUND RADIATOR

National Motor Vehicle Co.

1007 E. 22d STREET,
Indianapolis, Ind.

WATCH FOR THE ROUND RADIATOR

• *Member American Motor Car Manufacturers' Association, N. Y.* •

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G & J
Oval Raised
Tread Tire

The Most Serviceable Tire in the World

BECAUSE

SCIENTIFICALLY MADE

Write for our booklet

"PROPER TIRE CONSTRUCTION"

Which contains valuable information for the user of motor tires.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

G & J TIRE CO.
Indianapolis.

Depots:

Chicago	Boston	Cleveland
Detroit	Buffalo	Denver

Philadelphia
San Francisco, 411-413 Golden Gate Avenue
New York, 10 West 60th Street

Distributing Agencies:

Minneapolis, Plant Bros.
Portland, Ore., Keats & Co.
Los Angeles
Ramsay-Hutchins Rubber Co.,

CORBIN

AIR-COOLED CARS FOR 1907 WILL BE WORTHY IN EVERY RESPECT

FOR WISE BUYERS

CORBIN MOTOR VEHICLE CORPORATION

NEW BRITAIN, CONN.

N. Y. Branch, 1799 Broadway, New York.
E. T. Kimball Co., Motor Mart, Boston.
Bennett-Bird Co., 1470 Michigan Ave., Chicago.
J. W. Leavitt & Co.,
415 Golden Gate Ave., San Francisco.

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Columbia

Automobiles

1907 GASOLENE ELECTRIC 1907

Will maintain the high standard of excellence attained in the past.

An improvement made in all models where experience has demonstrated its value tends to make the COLUMBIA better than ever before.

Electric Vehicle Company

HARTFORD, CONN.

NEW YORK BRANCH—134-136-138 West 39th St.
CHICAGO BRANCH—1332-1334 Michigan Ave.
BOSTON—Columbia Motor Vehicle Co., 74 Stanhope St.
WASHINGTON—Washington E. V. Transportation Co., 15th & Ohio Ave.
Members Association of Licensed Automobile Manufacturers.





The winning of the speed indicator reliability contest in England was not a strenuous effort of any specially constructed instrument.

THE JONES SPEEDOMETER

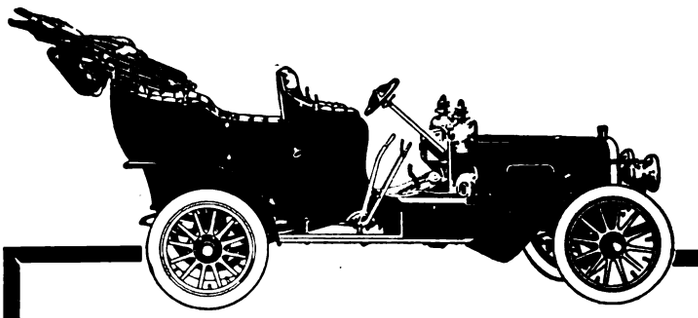
entered in this contest was a STOCK sample selected by the committee of judges. There are more Jones Speedometers in use to-day than all other makes combined, any one of which would have given an equally creditable performance.

The press of this country and abroad proclaim the Jones Speedometer to be the most reliable speed indicating device in the world. To those interested in speed matters, we will send free, a Gold Medal folder and a special issue of the Speedometer Bulletin.



JONES SPEEDOMETER,
132 West 32d Street, New York

MFG. BY JOS. W. JONES



6-CYLINDER FORD CAR

GRAND STAND PERFORMANCES

such as some cars are credited with in so-called "contests," count for little in the eyes of the experienced motorist. He knows that in all cases the cars participating under the title of "stock" cars are specially made for that work—are shipped from place to place by express and kept "in tune" at enormous expense out of the advertising fund.

IT IS THE EVERY-DAY RESULTS,

obtained by the every-day driver—the private owner—that tells the true quality of a car.

FORD CARS ARE CONSPICUOUS

for their absence from the set contests, and for their wonderful performances on the road. Reliability, obtained by simplicity of design and construction, is the key-note of Ford success.

WE ARE TOO BUSY

turning them out—the six-cylinder touring cars particularly—to devote any time to racing or long runs. The reason we are busy is because there is an immense demand for them—we are again two weeks behind orders on the Model "K," 6-40". We hope to catch up soon, however, and for next season's business—we are still a year ahead.

MODEL "K" FORD—6-cylinder motor; 40 Horse-Power—and then some; two complete and independent ignition systems—Magneto and Storage batteries, **$2,500**

A DEMONSTRATION IS A REVELATION

FORD MOTOR CO., Detroit, Mich.

Members American Motor Car Manufacturers' Association, Chicago.

BRANCHES: 147-149-151-153 Columbus Ave., Boston; 1721-23 Broadway, New York; 727 Main St., Buffalo; Broad and Buttonwood Sts., Philadelphia; 1444 Michigan Ave., Chicago; 1913 S. E. Euclid Ave., Cleveland and 318-320 E. 11th St, Kansas City.

CANADIAN TRADE supplied by
Ford Motor Company of Canada, Ltd., Walkerville, Ontario.

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Two Punctures

Between San Francisco and New York



represents the sum total of tire troubles in the remarkable transcontinental record run of a Franklin car equipped with

GOODRICH TIRES

A new cross-country speed record (3,500 miles in 15 days) and another practical demonstration of Goodrich Tire superiority following close upon the Glidden Tour accomplishment where 66⅔% of the clean score cars were equipped with GOODRICH AUTOMOBILE TIRES.

THE B. F. GOODRICH COMPANY,
AKRON, OHIO

New York, 66-68 Reade St. & Broadway — Chicago, 24 E. Lake St.
Oakland, Fourth and Washington Sts. — Boston, 161 Columbus Ave.
Philadelphia, 909 Arch St. — Buffalo, 731 Main St.
Detroit, 266 Jefferson Ave. — Denver, 1444 Curtis St.
Cleveland, 2188 Ninth St., S. E. — St. Louis, 3926-28 Olive St.
London, E. C., 7 Snow Hill.

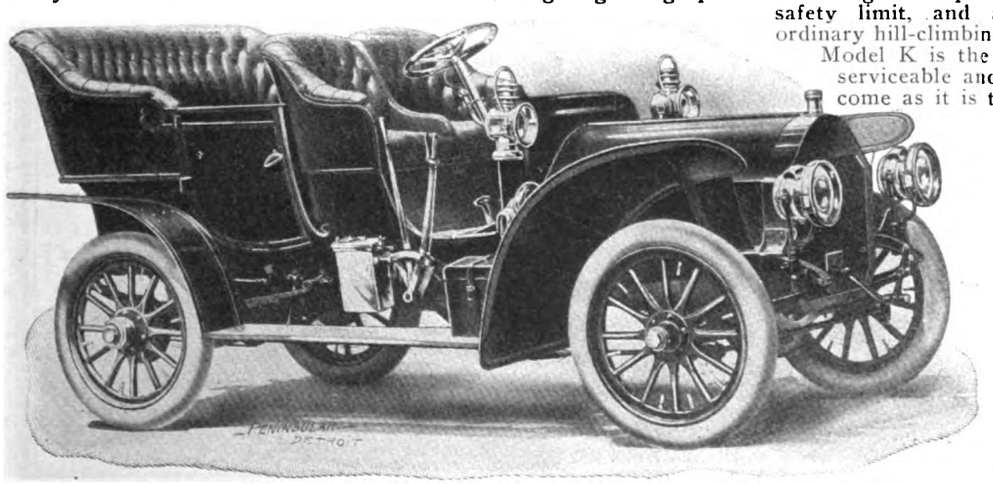
GOODRICH TIRES

Wayne

MODEL K FOR 1907 $2,500

Model K is a 4 cylinder car of standard type. This model has been thoroughly tested and we are prepared to give the strongest kind of guarantee that Model K will "stand up" under the most trying road conditions.

All the recognized 1907 improvements will be found in Model K. Our aim has been to make this car a thoroughly representative type of high grade American automobile construction. There is nothing "freakish" or experimental in its makeup. Every detail has been worked out with a view to giving a high-powered touring car capable of any desired speed up to the safety limit, and able to demonstrate more than ordinary hill-climbing ability on the high gear.



Model K is the type of car which will be just as serviceable and just as good looking in years to come as it is to-day.

The motor develops 35 H. P. on the brake. The cylinders are 4¼x5. The crank case and transmission case form a single two-piece aluminum structure, which ensures rigidity and perfect alignment.

We can make limited deliveries on Model K this month. Write us for further particulars and our catalog describing this and other cars in detail.

We can also make deliveries on the 1907 Model F, 50 H. P., $3,500.

WAYNE AUTOMOBILE CO.
Dept. 4 — DETROIT, MICH.

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WITH EACH

AJAX TIRE

There is a numbered "insurance policy" which

GUARANTEES 5,000 MILES

of riding to the holder.

"AJAX" ARE THE ONLY TIRES THAT "CARRY INSURANCE."

Write today for copy of this guarantee. Address **Dept. A,** and state size tire you are using.

AJAX STANDARD RUBBER COMPANY

Factory and General Offices: 420-430 East 106th Street, New York City.

THE MOST PERFECT REPAIR EQUIPMENT IN THIS COUNTRY

WE GUARANTEE ALL WORK THAT WE UNDERTAKE

Tires sent us for repair, if unsuitable, will be purchased for their rubber value if desired. However, we prefer to repair them if we can guarantee them.



Healy Leather Tire Co.

88-90 Gold Street
Healy Building
NEW YORK CITY

UPTOWN BRANCH
1906 Broadway
New York City



TRUFFAULT-HARTFORD

SHOCK ABSORBER

TRADE MARK

BE ECONOMICAL—ENJOY EVERY MILE OF THE RIDE

Equip your car with the famous Truffault-Hartford Shock Absorber, the Pioneer and the Best.

Increases Speed.
Prevents Breaking of Springs.
Doubles Life of Tires.

Makes Cobblestones and Rough Roads Seem Like Asphalt.
Prevents Lost Traction, Saving Running Power.

ACTUALLY DOES MORE THAN WE CLAIM

Cars Under 1,500 lbs. $40.
Four Suspensions.

FULLY GUARANTEED

Cars over 1,500 lbs. $60.
Four Suspensions.

POSTAL BRINGS PARTICULARS

HARTFORD SUSPENSION COMPANY

E. V. HARTFORD, Pres.

67 Vestry Street, New York.

Applications made at Garage, 212-214 West 88th St., New York.

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IF YOU USE SELL HANDLE GASOLENE

You are not safe from explosion unless you use

THE SNELL HYDRAULIC SYSTEM

Approved by the New York Board of Fire Underwriters, the Board of Health and the Fire Department.

Gasolene cannot explode unless mixed with air.
The SNELL SAFETY TANK is the only tank which is always filled with liquid; gasolene or water or gasolene and water (they can not mix). Any other tank admits air as the gasolene is drawn off and immediately becomes an acute source of great danger. The air also evaporates the most vital part of the gasolene and leaves the remnant with less power units. In the SNELL SAFETY TANK these dangers can not happen because no air can get in as the tank is always full of liquid. The New York Board of Fire Underwriters recognizing the absolute safety of our tank give the users of it a minimum rate of fire insurance. Write us for free descriptive booklet. It will save money for you.



SAFETY TANK COMPANY,

Selling Agents Hydraulic Oil Storage and Distributing Co.,
DETROIT, MICH.

Central Building, 25 West 42nd Street, New York.

MICHELIN MILES

You have heard of a few of them in 1906 undoubtedly.
Such for instance as the winners of

La Targo Florio
La Coupe D'or De Milan
Le Grand Prix (Sarthe)
Le Circuit des Ardennes

Not to mention the others in 1904 and 1905.

MICHELIN PRODUCTS SELLING COMPANY

E. D. WINANS, Manager

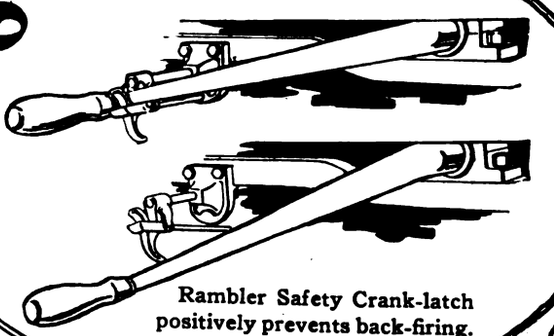
31-33 WEST 31st STREET, NEW YORK CITY

SOLE AMERICAN REPRESENTATIVE OF MICHELIN et CIE, CLERMONT-FERRAND, FRANCE

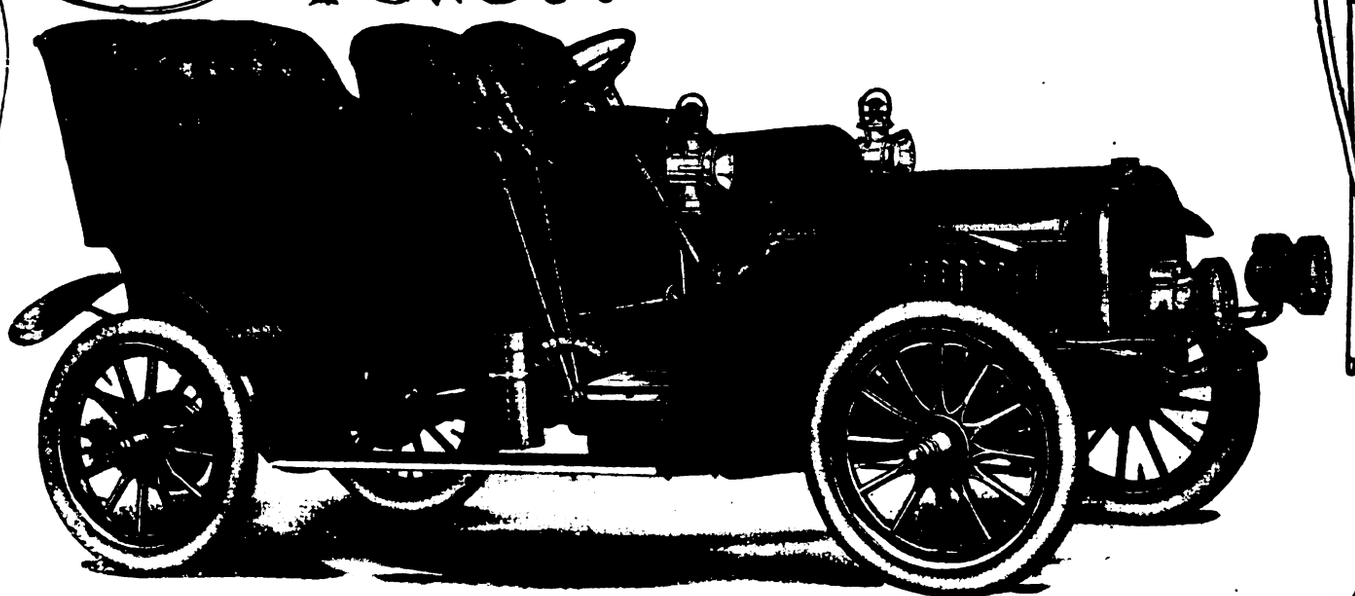
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Rambler

The Car of Safety, Service and Power.



Rambler Safety Crank-latch positively prevents back-firing.



Model 14, $1,750, with full equipment.

IN the development of the Rambler, while power, service and simplicity have been considered points of paramount importance, there has been no slighting of the minor details that mark the reliable automobile.

An example of this is our safety crank latch. This is so constructed that on releasing the crank therefrom to start the motor, the spark is automatically and positively retarded, thus avoiding back firing, which has so often resulted in serious injury to the operator.

This is only one of the many valuable features, described in the second edition of our 1906 catalog, which is now ready and at your service.

Main Office and Factory, Kenosha, Wisconsin.

Branches:

Chicago, Milwaukee, Boston, Philadelphia, San Francisco.

New York Agency, 38-40 W. 62d St. Representatives in all leading cities.

Thomas B. Jeffery & Company

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THE MOTOR WORLD

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, September 6, 1906. No. 14

N. A. A. M. RESUMES MEETINGS

Bennett's Resignation Causes Many Changes —No Action on Show Sanction.

Although application for sanction for the Grand Central Palace show was before the National Association of Automobile Manufacturers, at its executive committee meeting in New York, yesterday, no action regarding it was taken. The failure to act is not, however, a sign of unfriendliness, but is due, Manager Miles explained, to doubts as to whether, in view of the N. A. A. M. revised resolutions defining its show attitude, the sanction is necessary. Mr. Miles appeared to be of opinion that it is not required, despite the general impression to the contrary.

The meeting was the first that had been held in three months and was attended by S. T. Davis, Jr., Charles Clifton, M. J. Budlong, Winsor T. White, M. L. Goss, A. L. Pope, Thos. Henderson, E. E. Kirk, C. C. Hilderbrand and L. H. Kittridge.

George W. Bennett, who long had represented T. B. Jeffery & Co. in the N. A. A. M. and who recently became identified with the Knox interests, of course, resigned the office of first vice-president and his place on the executive committee, which brought about a number of changes. Charles T. Jeffery succeeded Bennett as the Jeffery representative; Benjamin Briscoe, Maxwell-Briscoe Motor Co., replaced him as executive committeeman, while A. L. Pope, Pope Mfg. Co., moved up into the first vice-presidency, S. D. Waldon, Packard Motor Car Co., taking Pope's place and Thomas Henderson, Winton Motor Carriage Co., filling the third vice-presidency, left vacant by Waldon's elevation.

E. R. Thomas also resigned as a member of the executive committee and was succeeded by his first lieutenant, Ezra E. Kirk.

Two new members were elected—George Pope, representing the Pope Motor Car Co., and C. A. Benjamin, representing the Babcock Electric Carriage Co.

Amendments were made to the rules governing the allotment of space at the Chicago show, so that positions will be determined by a drawing which will probably take place at the association's offices on the morning of October 3 and 4, members of the association taking part in the first day's drawing and other applicants in the second day's drawing. The gallery will be occupied by the members of the Motor and Accessories Manufacturers as heretofore. Application blanks and diagrams will be mailed to the trade in about ten days.

Arrangements were effected for a conference with C. J. Glidden to discuss the conditions that shall govern future contests for the Glidden trophy. In this connection, Winsor T. White, who probably has followed the Glidden contests with closer interest than any other manufacturer, told a Motor World man that his idea on the subject was to select a centered point, say, Pittsfield, Mass., where hotel accommodations are ample, and either early in the season or late, that is before or after the rush of guests has commenced or after it is over, run the contest from some such point, from which the day's travel shall radiate each morning in a different direction.

Gaylor Again Leaves Waltham.

L. B. Gaylor has again resigned as vice-president and general manager of the Waltham Mfg. Co.—this time, it is said, "for keeps." According to one well authenticated story, internal friction developed over the matter of prices for 1907, Mr. Gaylor standing out for more popular figures and finding himself out of sympathy with other officials, he promptly resigned.

Licensees in Two Days' Session.

The Association of Licensed Automobile Manufacturers are in session to-day at their New York offices and will have so much to do that their deliberations will occupy all of to-morrow as well. All of the business that was outlined to occur at the deferred Niagara Falls meeting will be taken up and disposed of.

AJAX AND GRIEB COMBINE

Tires now will be Made in Trenton—Great Enlargement in Prospect.

The Ajax Standard Rubber Co., which of late has been so prominently in the public eye, has made another unexpected move that has caused the spot light to be turned in its direction. In fact, it is no longer the Ajax Standard Rubber Co. of New York, but is now the Ajax-Grieb Rubber Co., of Trenton, N. J., the change of name and base having been brought about by consolidation with the Grieb Rubber Co., of Trenton. Horace De Lisser, who has been president of the Ajax Company, will be the head of the new combination with C. H. Oakley, vice-president, and Harry Grieb, secretary and treasurer.

Executive offices will be established in New York, but the factory here will be discontinued and the production of Ajax tires concentrated in the Grieb plant at Trenton, which is to be enlarged this Fall by the erection of two additional buildings, 400 by 500, and 120 by 150 feet respectively.

Wayne Men Fall Out and Suit Results.

Differences between A. L. Kull and his associates who constitute the Wayne Automobile Co. of New York and the Wayne Automobile Co., Detroit, have led to the institution by the former of a suit for $78,000 for alleged damages caused by non-deliveries and other things. The first that was known of the break between the former friends was when the Sheriff of New York this week received an attachment and attached seven cars and parts belonging to the Detroit manufacturers that were in this city.

Cleveland Becomes $300,000 Corporation.

Heretofore an unincorporated concern, managed by William L. Colt, the Cleveland Motor Car Co., on September 1st became a corporation under the laws of Ohio, with

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capital stock of $300,000 and these officers: President, William L. Colt; Vice President, James Laughlin, 3rd; Secretary and Treasurer, A. R. Davis; Engineer and Superintendent, S. W. Hartley.

The directors elected at the meeting for formal organization were: James Laughlin, Jr., of the Jones & Laughlin Steel Company, Pittsburg, Pa., H. Hughart Laughlin, of the Jones & Laughlin Steel Co., Pittsburg, Pa., Dexter Fairbank, of Chicago, James Laughlin, 3rd, A. R. Davis, S. W. Hartley, W. L. Colt.

For the season of 1907 an output of 250 30-35 horsepower Cleveland cars will be marketed. The Cleveland car is built upon chassis manufactured by the Garford Company of Elyria, and the Cleveland Motor Car Company will have its own factory for the finishing of the cars, in the Whitney Power Block, at East 12th and Power Streets, Cleveland.

S. W. Hartley, who will join the Cleveland Motor Car Company on October 1st, was for three years assistant superintendent of the Garford Company, and has recently been superintendent of the Acme Motor Car Company, Reading, Pa.

Keeler Evolves a 30-Second Rim.

Ernest Keeler, who will drive the Oldsmobile in the Elimination Trials of the Vanderbilt race, has stepped to the front as an inventor and the subject of his genius has been something that the attention of the motoring world has been riveted on for some time past—the removable rim. Keeler's new rim is claimed to be so far ahead of all the others that have appeared thus for that they are simply not in the same class with it at all.

The device differs radically from any of the kind that have thus far been tried, and it is claimed that it has been removed in the remarkable time of 30 seconds. With the exception of the felly, which is of aluminum, the wheel is of standard pattern with wood spokes and steel hub. A slot is provided between each pair of spokes and the rim itself carries a number of stay bolts to correspond, so that a rim to which an inflated tire is attached may be instantly slipped on and turned into place, the strain imposed on the tire and rim by the forward movement of the wheel locking the rim in position so that the faster the car runs the more firmly will the tires be held. Two spring controlled dowel pins prevent the staybolts from slipping out of the slots when the car is reversed.

More Room for Muncie Parts.

The Muncie Auto Parts Co., of Muncie, Ind., is erecting a new factory building at Elliott street and the Lake Erie and Western tracks. A two-story brick structure, 32x100 feet, is nearing completion, and when it is ready for occupancy the company will double its working force.

The Week's Incorporations.

Enid, Okla.—Enid Motor Car Co., under Oklahoma laws, with $20,000 capital. Corporators—C. S. McClelland, C. A. Myers, J. P. Marshall and W. A. McQuilkin.

Cleveland, Ohio.—Metropolitan Motor Co., under Ohio laws, with $10,000 capital. Corporators—Andrew Squire, H. J. Crawford, A. B. Sperry, F. H. Shellhorn and C. E. Sanders.

St. Louis, Mo.—Barbein Automobile Co., under Missouri laws, with $10,000 capital, fully paid in. Corporators—Charles Barbein, W. L. Johnson, H. F. Barbein and Sadie V. Johnson.

Cleveland, Ohio.—Puncture Proof Tire Co., under Ohio laws, with $100,000 capital. Corporators—Frank F. Gentsch, Godfred Knodler, Frank H. Calvert, Edgar L. Anderson and A. R. Siernan.

New York City, N. Y.—Badger Brass Manufacturing Co., under New York laws, with $1,000 capital. Corporators—G. A. Yule, R. H. Welles, Kenosha, Wis., and L. J. Keck, New York City.

Chicago, Ill.—Charles M. Thompson Co., under Illinois laws, with $2,000 capital; to manufacture engines and automobile devices. Corporators—Henry Horner, Herman Frank and Henry S. Blum.

Elbridge, N. Y.—Elbridge Motor & Tool Co., under New York laws, with $25,000 capital. Corporators—Reuben B. Sweet and William E. Robedee, of Elbridge, and G. Erwin Delong, of Syracuse.

New York City, N. Y.—Garage Operating Co., under New York laws, with $100,000 capital; to conduct garage. Corporators—N. H. Mason, W. J. Brady and H. C. Tinbury, all of New York City.

Columbus, Ohio.—Imperial Garage Co., under Ohio laws, with $10,000 capital; to conduct general garage business. Corporators—Frank S. Lott, William M. Edwards, Harry Wagner, W. S. Van Fossen and E. J. Williams.

New York City, N. Y.—Motor Car Service Co., under New York laws, with $10,000 capital; to deal in automobiles, etc. Corporators—C. G. Wridgway, J. A. Clark, E. W. Wridgway, of New York City, and D. D. Holmes, of Kingsbridge.

Denver, Col.—Crescent Automobile Co., under Colorado laws, with $15,000 capital. Corporators—H. H. Willison, G. G. Willison and D. M. Waite, Jr., all of Denver.

New York City, N. Y.—A. B. Nichols Co., under New York laws, with $25,000 capital; to deal in automobiles. Corporators—A. B. Nichols, J. W. Righter and J. F. Taylor, all of New York City.

End of the $500 Gotham.

Rudolph A. Seligman has been appointed receiver for the partnership property of David S. Dreyer and Louis C. Howard, who traded in New York as the Gotham Automobile Co., handling the Jackson car. They closed their place rather suddenly, but the receivership is the result of a suit brought by Dreyer against Howard for a dissolution of partnership. The business was started a year ago with the large sum of $500 contributed by Dreyer, who previously had been a horse trainer.

Opens Branch in San Francisco.

The Diamond Motor Car Company, of Los Angeles, Cal., who are selling Northern cars exclusively, have increased its capital stock to $20,000 and opened a large and handsome salesroom at 365 Fell street, San Francisco. Arrangements also have been made for a new building, 200x300 feet, specially designed for garage purposes, to be erected in the very near future. J. A. Thomasin is in charge of the San Francisco branch, Mr. Swan continuing as manager at Los Angeles.

Angry Customer Attaches Koehler.

A disgruntled customer, Dr. M. J. Synnott, Montclair, N. J., has brought about the attachment of the H. J. Koehler Sporting Goods Co.'s garage, at 1649 Broadway, New York. The doctor's claim is for $1,200 for alleged detention and wrongful use of his car which had been left with Koehler for repairs. A keeper was placed in charge of the garage, but the transaction of business will not be interfered with.

Maxwell-Briscoe on Site-Seeking Tour.

Benjamin Briscoe, president of the Maxwell-Briscoe Motor Co., of Tarrytown, N. Y., in company with Richard Irvin, E. J. Corbett and R. A. Creek, all interested in the company, have been visiting several Indiana towns, with a view to concentrating the Maxwell-Briscoe forces in some central location. Not merely Elkhart, but several cities are after the automobile factory, among them being Marion, Muncie and Kokomo.

Walla Walla Starts with Eight Men.

The Moore Automobile Co., which was recently incorporated at Walla Walla, Wash., for the purpose of building automobiles, has started work with a force of eight men. The Moore company will manufacture the frames in Walla Walla, but will purchase the other parts and assemble them in its factory.

Detroit Attracts the De Luxe.

The De Luxe Motor Car Co. will not build its plant in Toledo, Ohio, as was at first expected, but will establish the industry in Detroit. Better inducements from the Michigan city is said to be the reason for the decision to locate in Detroit.

To Make Meteors in Iowa.

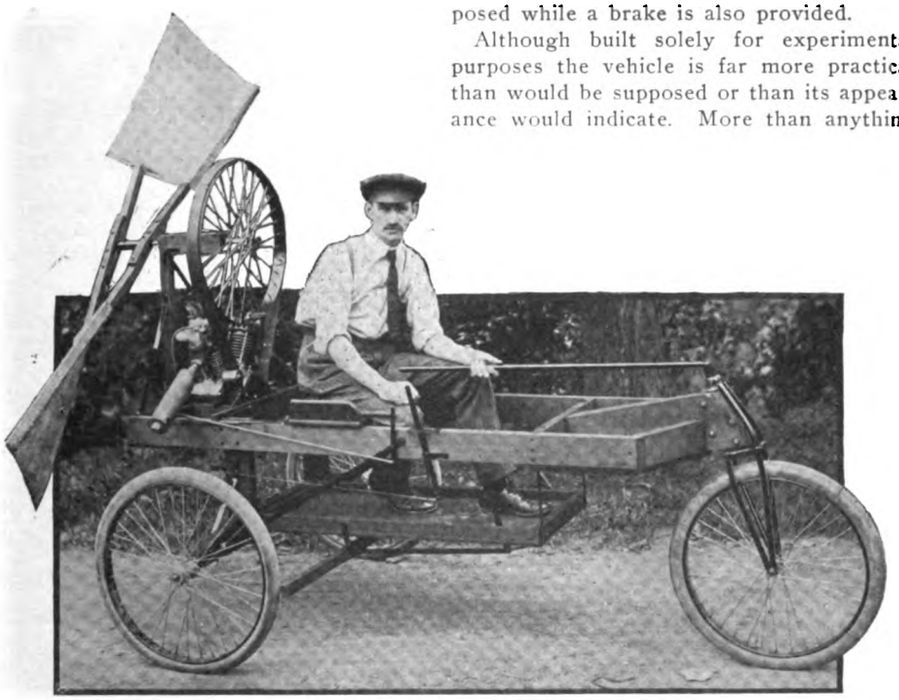
The Meteor Automobile Co., of Bettendorf, Iowa, installed machinery in its plant and began work this week. It is expected to have two cars on the road by the first of next month.

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HERE'S THE "WIND WAGON"

It Employs a Motor, of Course, and Illustrates Some Remarkable Effects.

What a tremendous force the air exerts when set in motion is realized occasionally from the needless havoc wrought by gales in which pieces of tons weight are often carried a long distance by the wind. But



that this can be taken advantage of in quite the opposite manner—that is, by utilizing its resistance as a force against which to push forward is but little appreciated. Aeronauts have been experimenting with this principle for years and it is in furtherance of these experiments for well known advocates of mechanical flight which are being carried forward by the G. H. Curtiss Mfg. Co., that the vehicle shown in the accompanying photograph was constructed.

Strictly speaking, it is not exactly the first one of its kind, for more than two years ago a citizen of the burg of churches that nestles at the other end of the Brooklyn Bridge conceived the idea of a "propeller propelled" vehicle, and except that his invention was principally intended to travel on the ice and was fitted with a special form of windwheel driven at a very high rate of speed by a gasolene motor, it was somewhat similar. The outfit shown by the accompanying illustration is purely experimental, having been built solely to test the efficiency of different styles of propellers. It is of extremely light construction, only weighing 300 pounds all on and has already been utilized for testing quite a number of different propellers.

The one shown on it is 6 feet in diameter and has a pitch of 5 feet 9 inches. It makes 300 revolutions per minute and drives the motor tricycle, if such it can be called, at the rate of 30 to 35 miles an hour on the level, besides being capable of overcoming quite a grade. The power plant consists of a Curtiss two-cylinder air-cooled motor, of the V-type built by this firm and developing about 5 horsepower. The motor is set directly beneath the propeller and drives the latter by means of a belt, a simple form of clutch and controlling lever being interposed while a brake is also provided.

Although built solely for experimental purposes the vehicle is far more practical than would be supposed or than its appearance would indicate. More than anything else it has been instrumental in demonstrating the remarkable resistance presented by the air and which may be utilized by a properly designed propeller. As may readily be imagined, its appearance on the road is the signal for a riot on the part of the equine contingent—as a scarer of horses, its equal is said to have seldom been known on the roads in the vicinity of the factory where it was built. It raises a tremendous cloud of dust, strips the trees bordering the road of their leaves and creates quite a sensation wherever it appears on the road.

His "Wanderlust" is Now Curbed.

J. E. "Kennedy" or "Douglass" or vice versa, the wandering "chauffeur" whose peregrinations have been detailed at length in the Motor World, now languishes in the county jail at Toledo, Ohio, having been bound over to the grand jury after waiving examination on a charge of passing a bogus check on the Weed Garage Co., of that city. Kennedy's plan was to make a circuit of garages and supply houses and purchase accessories and supplies, representing himself to be chauffeur for former-Sheriff Keeler, of Albany, N. Y., and asking that the bills be sent to his alleged employer. The Albany man has never owned an automobile.

EXPORTS MORE THAN DOUBLED

July Shipments Pass Half Million Mark—Marked Increase in Many Directions.

For the first time since the practice of tabulating the exports of automobiles has been adopted, it is possible to compare the value of the cars sent out of the country during any one month with that of the corresponding period of the year previous. This innovation was undertaken in July, 1905, so that the figures for that month may now be compared with those for 1906 and the showing is indeed instructive. For instance, in July a year ago, but $225,532 represented the total value of the cars sent abroad. For the present year it is $485,672, and this does not include $27,507 worth of parts which have hitherto been lumped in one total with the cars. What is of still greater interest is that in addition to maintaining separate statistics for the valuation of the parts sent abroad, the number of cars is also stated. In the month of July just past this was 266, making those exported of an average value of $1,082 in round numbers.

The total value of both parts and cars which was well in excess of 100 per cent. greater than July, 1905, was divided principally among the United Kingdom, France, British North America, Other Europe and Germany, the amounts ranging downward in this order. Although Germany brings up in the rear of the list of the larger takers of the automobile, there is no one other item in the entire list which shows such a marvellous advance, her total for the same period of a year ago being but $4,402. The total sent to the United Kingdom was $187,909 and to Germany $26,392. For the period of seven months ending with July for three years past the increase that is apparent is equally striking. This was $1,154,196 in 1904, $1,780,281 in 1905, and $2,869,289 for the present year.

The report in detail follows:

Exported to:	July, 1905.	July, 1906.
United Kingdom	$91,777	$187,909
France	24,140	71,046
Germany	4,492	26,392
Italy	16,270	9,991
Other Europe	11,177	27,535
British North America	49,971	85,704
Mexico	8,935	72,985
West Indies & Bermuda	5,687	12,361
South America	6,265	13,044
British East Indies	2,037	3,675
British Australasia	3,797	585
Other Asia and Oceania	1,391	1,847
Africa	1,593	105
Automobiles		485,672
Parts		27,507
Total	$225,532	$513,179

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You take no risk when you ride the Fisk.

THE TEST OF TIME TELLS THE STORY.

If the Rest of the Automobile is as Good as Fisk Tires It's All Right.

Fisk Construction backed by Fisk Quality has made Fisk Tires Famous the World Over

☛ NEXT YEAR—"BETTER THAN EVER"

FISK RUBBER CO., Chicopee Falls, Mass.

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NEW YORK, SEPTEMBER 6, 1906

The Confiscation Suggestion.

In line with the Massachusetts idea of depriving the motorist of the use of his property, either altogether or for a stated period upon conviction for the third time of violating some provision of the Bay State's drastic measure for the repression of all things automobile, comes the suggestion that the automobile itself and not its owner should be proceeded against. Resorting to legal phraseology, actions concerning violations of the speed limit, which are the bete noir of the "unmotored," should be in rem and not in personam.

Regardless of who might have been guilty of violating the law, the means used for that purpose should be confiscated instead of punishing the perpetrator of the crime. There should be a public pound for automobiles just as there is one for wandering animals and chattels that obstruct the public ways, and on being convicted for the second or third time, the guilty car should be towed off to languish mid spavined equines, stray dogs and empty packing cases for six months or a year. In case it happened to be the recent purchase of a motorist addicted to the habit of buying new models as fast as they appear, this might be equivalent to life imprisonment so far as its owner was concerned.

From out of the depth of his wisdom the promulgator of this most asinine of suggestions, admits that in many cases a guiltless chauffeur may be under the necessity of seeking a new berth, or an equally innocent owner may be deprived of his property "temporarily," but what of that? The automobile should have known better than to have had such an owner. This phase of the question is lightly dismissed with the sage remark "that these are things which may come in the course of nature like any other trouble due to careless choice of associates and should have the effect of making both owner and driver more careful in the future about those they pick up with."

Barring the Constitution with its guarantee of personal liberty, for what is a little thing like the Constitution when the suppression of the automobile is concerned?—there might be other objections to this form of regulation. But it is unnecessary to detail them. The suggestion itself is so utterly absurd as to scarcely merit consideration. Consistently followed out to its logical conclusion it would mean that in cases of murder, for instance, a fit punishment for the crime would be to confiscate the weapon and let off the criminal. But then the would-be suppressors of the automobile are not consistent, for almost in the same breath this advocate steps from the ridiculous to the sublime of commonsense by suggesting further than any arbitrary speed limit be abolished and that it be left to the courts to say what was a reasonable speed under the circumstances, as all other things "reasonable" are left to the judgment of the same tribunals in the light of all the surrounding conditions.

The Status of the Chauffeur.

Just what may be the status of the chauffeur in private employ is a question that appears destined to raise no end of discussion. The subject is broached by the man behind the wheel himself. Is he a mechanic, a mechanical coachman or a man of all work? He has been humorously characterized as the "hired man in the leather suit," but leather clothes are no longer considered a necessary adjunct to running an automobile and the driver himself balks at the designation of "hired man" in the sense implied by the term that he should make himself generally useful, so that in common with many other things connected with motoring this has already lost its meaning.

In the early days, and it may be added, when the rate of compensation was much lower than at present, the chauffeur did not object to working all day and half the night in order that his employer might have a few hours' use of the car, but now that the automobile has ceased to be an uncertain toy, its handling has come to be a commonplace matter. As either a mechanic or a coachman, the chauffeur would have reasonably certain and not excessively long hours, but in the combined role represented by the chauffeur they are lacking in both of these qualities.

Without going into all the pros and cons put forth by some of the disgruntled ones who, to put it most charitably, made an unfortunate choice of employers, it may be said that there is nothing anomalous about the position of the chauffeur. Where he becomes one of the numerous appendages of the menage of a wealthy motorist his duties will be restricted to looking after a car or cars, but where he is the only "hired man" of a large family they are apt to be far more numerous as well as uncertain.

Whether chauffeurs as a body will look at things thus philosophically is another matter. They have already organized on union principles in this city and set a minimum wage standard. The question of how many hours should be "put in" as a fair equivalent of that stipend will doubtless come up for settlement sooner or later.

The Car for Poor Roads.

Generally speaking, the chief argument which has been urged against the use of foreign built cars in this country has been that they were not constructed with special regard to the highway conditions which must be withstood here. But, by the same token, the American cars, built to withstand the hard usage of American roads, should be particularly well fitted for the service of countries which have notoriously bad roads, and this fact should give the American makers a great advantage in export trade. Foreign makers, notably the

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French and Germans, are reaching out constantly for the trade of the countries which are just awakening to the advantages of automobile traffic, yet from these same countries comes the report that the early attempts, mostly made with cars of French or German origin, have been unsuccessful on account of the poor condition of the roads. Here, then, is the cue for the American maker who is anxious to establish himself in the foreign trade. Here is an opportunity to turn our national handicap, our proverbially bad roads, to advantage in a business way, and one which cannot fail to bring results. Our highways are admittedly bad. If our cars will stand, them, they must be equal to the task of withstanding roads which are as bad or worse, in other countries.

The Use of Polished Parts.

That the maintenance of a car is a far greater source of expense in the end than the initial cost, is a statement so often repeated that it has come to be a classic with a large part of the non-motoring public. And naturally the chief item in this consists of the compensation of the chauffeur. It has been asserted on good authority that many more men would buy cars could they but feel that they had the time to give the machine the attention it requires. So far as the mechanism itself is concerned this does not apply directly as the matter of the minor adjustments usually needed by a good car are trivial consumers of time and anything serious in the way of repairs is handed over to those with adequate facilities.

But the cleaning of a car takes time—a great deal of it, and it is an item that is seldom considered in connection with the amount of attention that must be devoted to his machine by the motorist who cannot afford a chauffeur. A car never returns from a run clean, however short it may be, and the vast expanse of highly polished varnish with its brass trimmings soon shows the effect of neglect in a manner that is unmistakable. To preserve even a semblance of its original brightness by the end of the season, immediate and painstaking care, not to mention facilities for washing not usually afforded by the average private garage, are imperative every time the car comes in.

High speed and dirt roads, to say nothing of salt air and wet weather, are destructive of varnish and polish and there is already a growing tendency to limit the ornamentation of the car, not alone to prevent it becoming shabby in a short time, but also to save the great amount of time and labor that must otherwise be devoted to the process of cleaning and polishing. Its finish should be such that it could be used under all weather conditions and still look well and it must be noted that one American maker already has taken steps in this direction, by reducing the use of polished or nickel parts to a minimum. It would seem a subject worth the attention of other makers.

The Betterment of Drivers.

It is daily becoming evident that what is needed for the automobile is not so much a giant stride in the way of mechanical improvement, as changes for the better in the line of a more rational and cautious spirit among the driving fraternity. Even the staid and respectable horse, trained from his youth to travel the path of other horses in decorum and reasonable decency, and as a rule quite capable of taking care of himself, is admittedly better off when in the hands of a practiced and careful driver than when being urged forward by a reckless and incompetent person. A large proportion of the accidents to horse-drawn traffic are accountable to the negligence of the driver, and so it must be in even greater measure with the machine.

Of the thousands of persons who drive cars almost daily, only a small portion are really good drivers, the greater number being merely able to drive, while the small remainder are in a class by themselves, and distinctly a menace to themselves and the world at large. But most unfortunately, proficiency and caution do not go hand in hand, and the ability to keep a car on the road at low speed frequently leads the inexperienced driver to believe that his capability is unlimited in that direction. Since it seems to be more a matter of the man than of the machine, it would appear that a betterment of conditions could be effected only by a thorough reformation of the human temperament in the average specimen. Yet this being impossible, the matter must rest as it is but for the warning voice of the press. And the notice of the warning must be this: Blame the driver, not the car, when things go wrong, and let an accident be considered a disgrace.

Regarding the National Law.

Editor of the Motor World:

I note in column 1, page 583 of your issue of August 30th, a paragraph headed "Manufacturers Discuss National Law," stating that the American Motor Car Manufacturers Association has taken up the matter of a national automobile law.

Will you permit me to remind you that the need of such a law was long since appreciated by the National Association of Automobile Manufacturers; that some two years ago that association took the necessary steps to obtain it, and that the Committee on Legislation having it in charge has spent considerable time and thought, and no inconsiderable sum of money, in the effort.

The test case necessary is now in the higher courts of the State of New Jersey, having proceeded there in the routine way and as expeditiously as possible. From the highest tribunal in New Jersey the case, whichever way it will be decided, will, by agreement, be carried to the Supreme Court of the United States, whence in due time a decision will emanate that will establish the rights of automobilists unequivocally and for all time.

Mr. Charles Thaddeus Terry, probably the foremost authority in the country on such litigation, represents the National Association of Manufacturers, and with him the Legislative Committee of that association has had many and prolonged consultations on the subject, that the final decision may cover all points now in doubt, be reached at the earliest possible moment, and, when reached, be unassailable.

Your paragraph further states that the American Motor Car Manufacturers' Association has been interested and influenced in the matter by Mr. C. E. Duryea, one of its Committee of Management.

I would further like to remind you that Mr. Duryea was a member of the Executive Committee of the National Association of Automobile Manufacturers when the matter was taken up, and should be fully aware that any other action, whether by an individual or a corporation, before the decision of the Supreme Court is rendered, must necessarily be repetitive, and consequently useless.

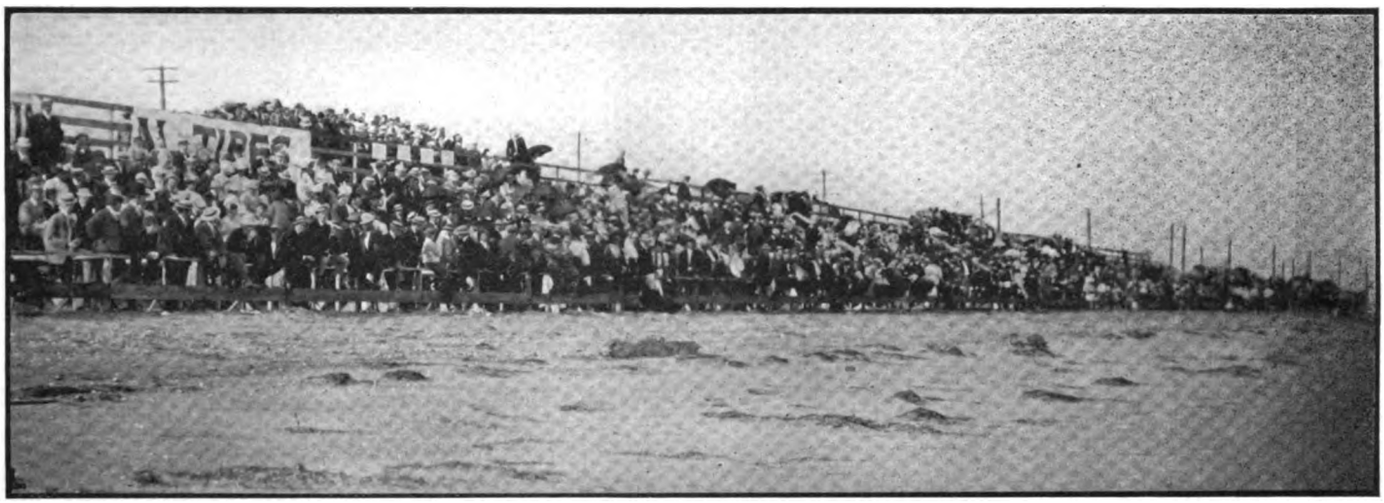
Your columns have from time to time made mention of the progress made, and Mr. Duryea, being a member of the N. A. A. M., could, had he desired, have fully informed himself of the action and its progress by applying to the National Association, the records of which are open to its members.

Your paragraph is a fact, since the subject is old, and every available step been taken to accomplish the desired end.

G. W. BENNETT,
Ex-chairman of the Legislative Committee of the National Association of Automobile Manufacturers.

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THE THREE DAYS' SPEEDFEST ON ATLANTIC CITY'S SAND



THE GRAND STAND AND STRETCH OF BEACH SHOWING BUMPS

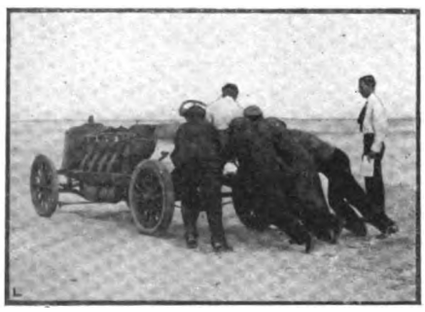
Atlantic City, Sept. 3.—More than 5,000 persons assembled on the beach at Ventnor this afternoon to witness the first day's racing of the three days' meet that has been arranged by the Atlantic City Automobile Club, and although but one record was broken, that for middleweight cars, the races were exciting as beach races go and drew forth plenty of applause from the grandstand and the crowds of "standers" along the course. The races were scheduled to begin at one o'clock. With the sun smiling deceptively in the sky, hundreds boarded the trolleys to Ventnor—women in radiant gowns and men in the "gladdest" of "glad rags," for Labor Day always attracts many thousands of pleasure seekers to Atlantic City, whether there is the additional attraction of automobile races or not. They began to assemble on the stands at noon for the premonition of a rush seemed justified.

Promptly at one o'clock the band began to play and at that time a crowd of about a thousand sat in the seats patiently waiting for the fun to commence. Then someone surreptitiously pointed to the sky. There was a gasp—no, a choke, of dismay among the women and among the men, and they turned to one another and casually muttered with adjectived adjectives, that it looked like rain. Then, before anybody had a chance to get anywhere, with a swish and a roar, the rain began to pour. It came down by tubsful and the only persons who appeared to really enjoy it were the drivers on the beach, who were protected from the deluge by rubber ponchos. Although brief, the storm is said to have been the worst of the season, and just as every one had gotten drenched to the skin the sun came out audaciously. The beach dried and became smooth, the women spread their clinging laces as much as possible to the sun, the band played "Is Everybody Happy," the crowds from the city began to come by hundreds and finally the races started.

The first event was a pretty bad starter, but after that the crowd waxed eloquent in their hurrahs. The first event was a record trial for steam cars, but the singular noun might just as well have been substituted, as only one car—a Stanley—driven by D. Walter Harper, essayed the attempt. His time was 51⅗ seconds. Following this were the record trials for gasolene cars which brought forth better time, S. B. Stevens's 80 horsepower Darracq covering the measured stretch in 39⅗ seconds. C. H. Schroeder's Darracq of the same power disputed the honor, running a close second in 40⅗ seconds. Emmanuel Cedrino, in a 24 horsepower Fiat, always a prominent figure at the Atlantic City beach carnivals, had a walkover in 51⅘ seconds, which is a record for middleweight cars for the course.

In the regularly equipped touring car class, for machines selling under $3,000, C. W. Kelsey, in a Maxwell, won out over H. R. Sack's Mitchell and D. Roy Fowler's Locomobile, which finished in this order. Each car carried five passengers and the winner's time was 1:30⅗.

Considerable interest was manifested in the fifth event, which was styled the "touring car championship," and was for all regularly equipped cars of 60 horsepower or less, carrying five passengers. It was run in two heats and a final. The first heat resulted in a spirited brush between J. .H Harding, English Diamler, and Ernest Kelly, Thomas, the former winning out in 1:12⅗. The second heat was won by A. B. Coles, Pierce, Alfred Willington, in an American Napier, finishing second. In the final heat Harding won easily, finishing some distance ahead of Kelly, the second man. Four cars in each of the heats, and some lively scrambling resulted in the get-away.



HELPING CAMPBELL START

Speeding over the course with near meteoric velocity, Campbell, in Stevens's Darracq, carried off the honors in the two heats for the Atlantic City cup, making the mile in 46⅘ seconds in the first heat and 45⅗ in the second. Campbell was the first winner of the cup and the victory to-day gives him the permanent ownership. The other starters in the heats were Wallace, 80 horsepower Darracq; Tom Cooper, 60 horsepower Matheson, and D. W. Harper, 20 horsepower Stanley. Campbell made a good run and finished well ahead of the others, Wallace crossing the line second. In the second heat Campbell and Wallace were first and second and Cooper third.

The price handicap for four-cylinder touring cars with the $4,000 cars on scratch and a handicap of one second for each car $200 less in price, was won in pretty fashion by Ernest Kelly, in the Thomas, from scratch. There was a lively battle for second honors, W. T. Smith's Thomas getting second from H. R. Saks Mitchell by less than a shadow. Harding, in the Daimler, won the foreign touring car race from Cedrino, in his Fiat, and in a runabout race between two Maxwells and a Buick, the latter with Edward Wilkie at the wheel, won out by about fifty yards. The summaries follow:

Record trials for steam cars—Walkover for D. Walter Harper, 20 horsepower Stanley. Time, 0:51⅗.

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Record trials for heavyweight gasolene cars—Won by Campbell, 80 horsepower Darracq; second, Wallace, 80 horsepower Darracq. Times, 0:39⅗, 0:40⅗.

Record trials for middle weight cars—Won by Emmanuel Cedrino, 24 horsepower Fiat. Time, 0:51⅗.

For regularly equipped touring cars selling less than $3,000, carrying five passengers—Won by C. W. Kelsey, 35 horsepower Maxwell; second, D. R. Fowler, 20 horsepower Locomobile; third, H. K. Sack, 30 horsepower Mitchell. Time, 1:30⅗.

Touring car championship, for cars of 60 horsepower or less—First heat won by J. H. Harding, 40 horsepower English Daimler; second, Ernest Kelly, 50 horsepower Thomas. Time, 1:12⅗. Second heat won by A. B. Coles, 45 horsepower Pierce; second, Alfred Willington, 60 horsepower American Napier. Time, 1:20. Final heat won by Harding; second, Kelly. Time, 1:08⅘.

Free-for-all championship, for Atlantic City Cup—First heat won by Campbell, 80 horsepower Darracq; second, Wallace, 80 horsepower Darracq; third, H. W. Gill, 20 horsepower Stanley. Time, 0:46⅘. Second heat won by Campbell, 80 horsepower Darracq; second, Wallace, 80 horsepower Darracq; third, Tom Cooper, 60 horsepower Matheson. Time, 0:45⅗.

Price handicap—Won by Ernest Kelly, 50 horsepower Thomas (scratch); second, W. T. Smith, 50 horsepower Thomas (scratch); third, H. R. Sack, 30 horsepower Mitchell (0:07). Time, 1:21⅗.

Foreign touring car race—Won by J. H. Harding, 40 horsepower English Daimler; second, Emmanuel Cedrino, 24 horsepower Fiat. Time, 1:10⅗.

For runabouts selling less than $1,000 and carrying two passengers—Won by E. Wilkie, 12 horsepower Buick; second, W. M. Davis, 10 horsepower Maxwell. Time, 1:34⅘.

Atlantic City, Sept. 4.—The greatest enthusiasm of the meet was worked up to-day when Tom Cooper, in the Matheson car, raced Harding, English Daimler, for a sweepstake purse of $500, put up by the owners of the car. This was an impromptu affair, but it is safe to say that no race caused so much interest as this. It soon became noised around that the cars were racing on a bet and many hurried wagers were staked by the partisans of the respective machines. For the first time the spectators were all on their feet when Cooper, in the made-in-Wilkesbarre machine flashed over the tape, leading his English rival by three lengths. His time was 58⅘ seconds, one of the most notable runs of the meet for its class. Another special event in which a few lesser lights backed their dollars, was a scramble between three little Stanley tea kettles. Merrill Dobbins, who, despite his name, is not "horsey," carried off the honors and some of the dollars.

To-day the weather was beyond reproach but the racing was not up to the standard. Cedrino could not drive the "Fiat, Junior" under 1:05⅘ against a 51-second gait of yesterday and the big cars failed to scratch any records.

Competition was keen in the touring car race for cars selling at less than $5,000, and after winning his heat in pretty style, Kelly, yesterday's victorious Thomas driver, scored over Ernest Lash's Packard, in the final heat, after a pretty set-to. The Darracq cars again ran off with the laurels in the standing start heavyweight championship and Lash's Packard secured a leg on the Lyons' cup by winning that event. The summaries of the day's racing follows:

For touring cars selling at $5,000 or less, carrying five passengers—First heat won by E. R. Kelly, 50 horsepower Thomas; second, Ernest Lash, 24 horsepower Packard; third, John Wilkins, Jr., 40 horsepower Winton. Time, 1:17⅗. Second heat won by E. R. Strong, 50 horsepower Pierce; second, W. T. Smith, 50 horsepower Thomas; third, Samuel Moore, 30 horsepower Franklin. Time, 1:20⅗. Final heat won by Kelly; second, Lash; third, E. R. Strong. Time, 1:14⅗.

Standing start championship for heavyweight cars—Won by Wallace, 80 horsepower Darracq; second, Campbell, 80 horsepower Darracq; third, Tom Cooper, 50 horsepower Matheson. Time, 0:58⅕.

For touring cars selling at $1,500 or less, carrying four passengers—Won by D. Harper, 20 horsepower Stanley; second, E. Wilkie, 22 horsepower Buick; third, J. W. Davis, 20 horsepower Maxwell; fourth, W. C. Longstreth, 20 horsepower Maxwell. Time, 1:42.

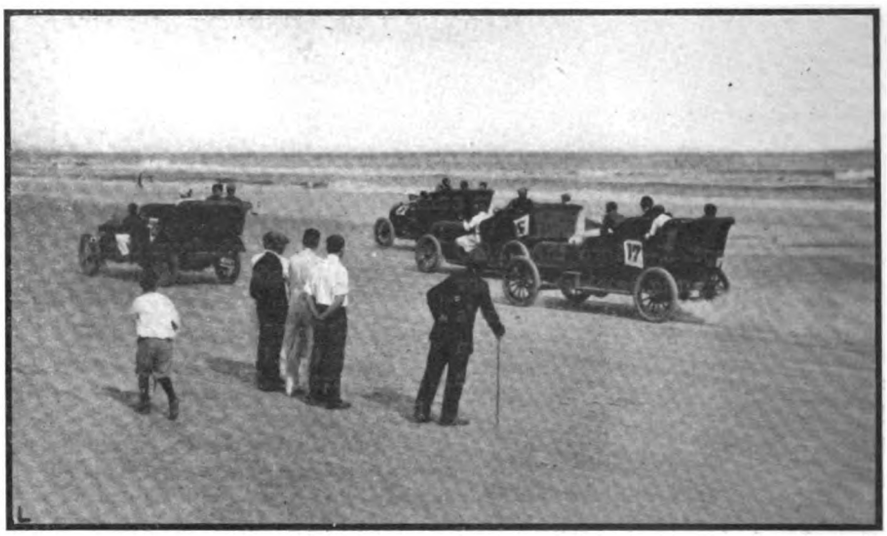
For Lyons' cup, for touring cars of 30 horsepower or less—Won by Ernest Lash, 24 horsepower Packard; second, S. W. Moore, 30 horsepower Franklin; third, J. G. Patterson, 30 horsepower Peerless; fourth, Barney Oldfield, 24 horsepower Peerless. Time, 1:15⅘.

Special race—Won by Alfred Codman, 60 horsepower Napier; E. Cedrino, 24 horsepower Fiat, did not finish. Time, not taken.

Special for steam cars—Won by Merrill Dobbins, 10 horsepower Stanley; second, J. T. Moriarity, 10 horsepower Stanley; third, George Caler, 10 horsepower Stanley. Time, 1:25⅕.

Match race—Won by Tom Cooper, 50 horsepower Matheson; second, J. H. Harding, 45 horsepower English Daimler. Time, 0:58⅕.

Time trials—Pierce, 1:09⅗; Stanley, 1:07; Franklin, 1:14⅗; Fiat, 1:05⅕; Darracq, 0:39⅕.



START OF THE "TOURING CAR CHAMPIONSHIP"

Atlantic City, Sept. 5.—Because a heavy gale blew from the ocean today the cars ran down the beach in the final day's racing, to get the benefit of the east-northeast breeze. The best time of the meet was recorded when Campbell, in his 80 horsepower Darracq, covered the mile stretch in 37⅘ seconds; this, however, not being equal to the record for the north Atlantic beach record, Walter Christie having made 34⅕ during the spring meet. The next best time today was made by the other Darracq, piloted by Wallace. The timers caught him in 38⅕ seconds. Both times were made in the record trials. For the most part the concluding day's racing consisted of impromptu match races between drivers who had disputes to settle. Although the crowd was not as large as that which journeyed to Ventnor on Monday, still it numbered several thousand. Tom Cooper, and his Matheson, again figured in the limelight, making a freak record by carrying seven persons over the course in 50⅕ seconds, 10 seconds better than any similar record. One of the special match races which aroused considerable interest was that be-

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tween W. T. Smith's 50 horsepower Thomas and Samuel W. Moore's 30 horsepower Franklin, $500 being wagered on the outcome. The Thomas car copped the money making the distance in 1:38⅕.

In the heavyweight class, Campbell's big Darracq again carried off the honors, beating Wallace's Darracq to the tape in 49⅗ seconds. Besides the impromptu races only two regularly programed races were run off—for runabouts of all types carrying two passengers, and a handicap open to all cars that had established a record of 1 minute 10 seconds or better during the meet. John Wilkins's 40 horsepower Winton won the runabout event, after a good brush with Tom Cooper in the Matheson. Walter Harper, 20 horsepower Stanley, finished third, Hugh Willoughby, 36 horsepower Olds, fourth, and Ed. Wilkie, 22 horsepower Buick, fifth. In the class handicap, Harper's Stanley, with a lead of 11 seconds, cleaned up the field, Cooper in the Matheson, running second from 10 seconds, J. H. Harding, English Daimler, crossing the tape third, from the liberal handicap of 15 seconds. Wallace's Darracq got one second and came in fourth, and W. T. Smith, Thomas, was fifth. The summaries follow:

Heavyweight record trials—Won by Campbell, 80 horsepower Darracq; second, Wallace, 80 horsepower Darracq. Times, 0:37⅘, 0:38⅕.

Free-for-all runabouts, carrying two passengers—Won by John Wilkins, Jr., 40 horsepower Winton; second, Tom Cooper, 50 horsepower Matheson; third, Walter Harper, 20 horsepower Stanley; fourth, H. L. Willoughby, 36 horsepower Olds; fifth, Edward Wilkie, 22 horsepower Buick. Time, 1:35⅗.

Handicap for all cars that have established records of 1:10 or better during the meet—Won by D. Walter Harper, 20 horsepower Stanley (0:11); second, Tom Cooper, 50 horsepower Matheson (0:10); third, J. H. Harding, 45 horsepower English Daimler (0:15); fourth, Wallace, 80 horsepower Darracq (0:01); fifth, W. T. Smith, 50 horsepower Thomas. Time, 1:08⅘.

For heavyweight cars—Won by Campbell, 80 horsepower Darracq; second, Wallace, 80 horsepower Darracq. Time, 0:49⅘.

Match race, for $500 purse—Won by W. T. Smith, 50 horsepower Thomas; second, Samuel W. Moore, 30 horsepower Franklin. Time, 1:38⅕.

For the sake of convenience to its members, the regular directors' meeting of the American Automobile Association will not be held this month until Thursday, September 20th, two days previous to the elimination trials of the Vanderbilt cup race. Nearly all the members of the board will be in town by that time and as the committees will have a number of important matters to discuss, it was deemed best to postpone the meeting from its regular time this week.

WILL START AT WESTBURY

Vantage Point of Vanderbilt Race is Rechosen—Arrangements near Completion.

Among the important and interesting announcements of the arrangements being made in connection with the running of the Vanderbilt cup race, was that given out yesterday by Chairman Jefferson de Mont Thompson concerning the location of the grandstand. It has been understood that the location would not be the same as last year's, namely, at Mineola, and this proves to be the case. The grandstand for the third Vanderbilt trials and for the race itself will be located where the one stood for the race in 1904, on the Baltizzi property on the Jericho turnpike, near Westbury, with its more or less famous roadside pump. This year's structure will undoubtedly be much larger than the ones preceding. Of course, both races will start and finish at this point.

Preparations for the elimination race on September 22, two weeks from next Saturday, are rapidly going forward and the course is assuming a businesslike aspect, the work of oiling being already well under way. Mr. Thompson went around the course yesterday and arranged for several improvements to the course. The turn at Lakeville is covered with loose soil and the fact that a rail fence surrounds the field at the elbow would make taking the turn at high speed extremely hazardous. The fence will be removed and the roadbed hardened, and a drain put in to carry of the moisture that settles in the lower part of the turn. From Mineola to Jericho the pike is in poor condition, sharp stones sticking up through the roadbed. A gang of laborers will fix this stretch this week.

Several of the contestants already are on the course and by the end of next week practically all the contestants for the elimination race will be on the course. The Pope-Toledo car, which will be driven by Herbert Lytle, with Bert Dingley at his side, arrived in New York this week and was taken to the Southworth garage in Brooklyn, where it will remain until next Wednesday, when it will be taken to the course. Joe Tracy drove his Locomobile from New York to his training quarters at Lakeville yesterday. The Frayer-Miller car has been on the course several days. While trying out the 90 horsepower Apperson near Laporte, Ind., last week, one of the rear tires burst, and the car ran into a ditch throwing out and injuring the driver, Edgar Apperson. George Robertson, who will drive it in the race, received word that the car was not badly damaged and would arrive in New York early next week.

To prevent speeding on the course by non-contestants, Chairman Thompson has given out that Sheriff Gildersleeve of Nassau county, will have constables posted along inviting looking stretches and woe betide the luckless chauffeur who is tempted to advance his spark to the limit.

Motorist Fined for Maiming a Dog.

One of the first cases of its kind on record, where an automobilist was charged and convicted of cruelty to animals when he ran over a dog, was tried at Mt. Arlington, N. J., on Saturday last. The unusual aspect of the case caused it to attract considerable attention.

On the 24th of last month, Walter J. Knight, a Newark lawyer, who summers at Lake Hopatcong, was going to the Mt. Arlington station. He was in the regular stage, while a valuable Irish setter trotted along beside on the left-hand side. An automobile owned by W. B. Keller, of New York, came along and turning to the left to pass the stage, ran over the dog. Knight placed the case with the Society for the Prevention to Animals, and it made out a case, which was tried in Mt. Arlington on Saturday last. The defendant was present with counsel but put in no defense, counsel simply cross-examining the prosecution's witnesses. As the dog was not killed, Justice Cook, before whom the evidence was placed, decided that there had been a violation of the cruelty to animals' act and imposed a fine of $25 and costs.

Knight claimed the dog was practically ruined for hunting purposes and immediately brought a civil suit against Kellar for damages. The same evidence was introduced as in the cruelty case, with two more witnesses to show the damage done the dog in the shock to its nervous system. On the question of damages decision was reserved.

Illinois Association Elects Officers.

Directors for the ensuing year were elected at the annual meeting of the Illinois State Automobile Association held last week in Chicago. These directors will in turn choose officers at a meeting to be held soon. Of the eleven directors named four are from Chicago, that city naturally being the headquarters of the organization. The new board will consist of John Farson, Sidney S. Gorham, Ira M. Cobe and Joseph F. Gunther, of the Chicago Automobile club; Joseph H. Francis, Austin Automobile club; Samuel P. Irwin, Bloomington Automobile club; George W. Erhart, Decatur Automobile club; C. H. Cobb, Kankakee Automobile club; A. J. Olsen, McHenry County Automobile club; R. A. Whitney, Peoria Automobile club; G. K. Barnes, Rockford Automobile club.

For the purpose of furthering the movement for good roads and to organize for their mutual protection and assistance the automobilists of Joplin, Mo., last week effected a temporary organization with the following officers: President, J. F. Dunwoody; secretary, F. C. Ralston; treasurer, W. G. Sargeant.

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NEWARK'S FREE SHOW

Immense Crowd Present, of Course, and Sees Sport of the Variegated Sort.

Whenever the New Jersey Automobile and Motor Club of Newark gives one of its race meets at Waverly Park, it is assured that the occasion will be an overflowing success from the attendance standpoint if the weather be at all favorable as it was last Monday, 3d inst. It is a public park and everything is free, even to the grandstand seats, programs and sample copies of various motoring publications.

There had been some talk that the club would try to secure the presence of Maurice Bernin or Barney Oldfield, or both, with their racing cars, to give some speed exhibitions, but neither Bernin nor Oldfield appeared on the scene and all of the racing was furnished by stock cars that were stripped or not, according to the fancy of their drivers. More than a hundred automobiles were parked around the outside fence of the half-mile track and the attendance was variously estimated at from 12,000 to 20,000, the former figure probably being the correct one. J. W. Mason acted as starter and was very economical with his cartridges, refusing to fire his pistol for any but the first or second cars to signify that they were on the last lap of whatever event in which they were competing. There was a slight mix-up at the end of the first race when F. C. Stowers, in a Reo, could not be persuaded to stop, though Starter Mason frantically waved his flag at him, and Clerk of Course W. I. Fisk ran out in front of Stowers and had his knee bumped in consequence.

The most notable feature of the afternoon's sport was the manner in which almost all of the contestants disregarded rules, which provided that cars be regularly equipped or with regular equipment, save that lamps might be removed. In one race, in which both lamps and mud guards were called for, none of the competing cars had so much as a small step to show.

There were four scratches in the first event, but two added starters brought the field up to eight contestants. It was a 25-mile handicap for cars costing from $750 to $4,000, run from a standing start. M. R. Brown dropped out at two laps and A. L. Pashby retired after driving three laps. H. J. Koehler started off with a rush in his Buick, but it stopped running at two miles. F. C. Stowers, handicap 4 minutes 30 seconds, won with a 16 horsepower Reo.

The second event was a five mile motorcycle contest in which three started, all riding 2¼ horsepower Indians. P. Drummond got away in the lead and was never headed, winning by a lap and a half. The third race was for cars costing from $750 to $1,500, distance five miles. The hard working starter tried to set them away to a flying start, but had to give it up, so the three contestants were sent away from a standing start. H. J. Koehler, 22 horsepower Buick, got off the mark quickest and led all the way, easily defeating C. W. Oatout, 20 horsepower Jackson.

The fourth event was a five-mile handicap for a cup given by President J. H. Wood, for regularly equipped cars, but this rule was more honored in the breach than in the observance. Scratches reduced the field to four, John Price being virtual scratch man with 30 seconds. Koehler passed Oatout, 20 horsepower Jackson, who had five seconds more handicap, in the fifth lap and then overhauled Stowers, 16 horsepower Reo, in the ninth lap.

The fifth event, for regularly equipped cars costing $1,400 to $3,000, was notable for the presence of one competitor, A. H. Whiting, in a Stoddard-Dayton from which even the lamps had not been removed. In spite of the handicap of the mud guards, Whiting managed to finish third. M. H. Apgar was the winner, with a 25 horsepower Pope-Hartford. Half a lap behind Apgar was F. E. Boland, with a 35-40 horsepower National, which finished ten yards ahead of Whiting and his Stoddard-Dayton.

The sixth event was a ten-mile free for all with no restrictions as to equipment. Koehler stripped his Buick for the race. There were five scratches in this event, but four added starters gave a field of five. James Ward, in another Buick, won from Koehler with half a lap to spare. Koehler won the pursuit race from Boland and the timers forgot to take the time. Koehler chased Boland for three miles after the other two contestants had been eliminated. The last race was a five-mile handicap for the New Jersey Automobile and Motor Club trophy, which is to be competed for during the next five years. John Price, 24 horsepower Autocar, had 45 seconds handicap and won easily. Koehler just squeezed into third place in the last few yards, which excited him so that he jumped to his feet after finishing and waved his hands in the air.

Following are the summaries:

Twenty-five mile handicap, cars costing from $750 to $4,000—Won by F. C. Stowers, 16 horsepower Reo (4 minutes 30 seconds); John Price, 24 horsepower Autocar (2 minutes) second; F. E. Boland, 35-40 horsepower National (scratch) third. Time, 37:44.

Five mile motorcycle race—Won by P. Drummond, 2¼ horsepower Indian; E. Allen, 2¼ horsepower Indian, second; C. D. Seiler, 2¼ horsepower Indian, third. Time, 7:52⅗.

Five miles, cars costing from $750 to $1,500—Won by H. J. Koehler, 22 horsepower Buick; C. W. Oathout, 20 horsepower Jackson, second; F. C. Stowers, 16 horsepower Reo, third. Time, 7:25⅗.

Five mile handicap—Won by H. J. Koehler, 22 horsepower Buick (40 seconds); F. C. Stowers, 16 horsepower Reo (1 minute) second; John Price, 24 horsepower Autocar (30 seconds) third. Time, 7:16.

Five miles, cars costing $1,400 to $3,000—Won by M. H. Apgar, 20-25 horsepower Pope-Hartford; F. E. Boland, 35-40 horsepower National, second; A. H. Whiting, 30 horsepower Stoddard-Dayton, third. Time, 7:30.

Ten miles, free-for-all—Won by James Ward, 22 horsepower Buick; H. J. Koehler, 22 horsepower Buick, second; M. H. Apgar, 20-25 horsepower Pope-Hartford, third. Time, 14:14⅘.

Pursuit race—Won by H. J. Koehler, 22 horsepower Buick; F. E. Boland, 35-40 horsepower National, second. Time, not taken.

Five mile handicap—Won by John Price, 24 horsepower Autocar (45 seconds); E. Schefler, 20 horsepower Jackson (25 seconds) second; H. J. Koehler, 22 horsepower Buick (scratch) third. Time, 6:05⅕.

Big Fine for Small Offense.

By imposing a fine of $100 on an automobilist last Friday, Justice of the Peace Robert D. Brower, of Maplewood, N. J., who achieved notoriety a few years ago by fining Bird S. Coler, Brooklyn's "champeen of the peepul," has set a high mark in the race for fame of Jersey justices since the new law went into effect. The State good roads fund was enriched $100 at the expense of John Radel, of South Orange avenue, Newark. A Newark policeman saw Radel's machine running along the avenue at 10:30 o'clock at night with two different numbers displayed on the lamps of the machine. One was 2346 and the other 1813. The minion of the law stopped the party and with a groan they discovered that the unlucky "13" was the last digit of one number, and "23" and "46," "double skiddoo," had proved their undoing. Radel's explanation was that he had broken one of his lamps and had borrowed the other. The judge said he had the power to fine the offender $500, but when the latter told him to take the car, Justice Brower compromised with a fine of $100, which is a record so far.

Reading Forms Racing Association.

The Reading (Pa.) Automobile Racing Association was organized last week with these officers: President, G. M. Britton; vice-president, Isaac Eckert; second vice-president, Dr. J. M. Bertolet; secretary-treasurer, Louis Winter; business managers, Madcolm A. Newstetter, Harry B. Redclay, Lincoln A. Ernshaw and James MacLean. The new organization proposes giving a race meet at the Shillington track on Thursday, 20th inst., embracing a card of seven events, as follows: For cars selling at $3,500 or less; selling between $2,500 and $3,500; runabouts between $1,500 and $2,500; cars between $1,200 and $1,500; runabouts between $600 and $1,200; free-for-all and for motorcycles.

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BAD SPILL AT ST. LOUIS

Car Crashes into Fence and Two Injured—Fair Racing and a Protest.

An accident almost parallel to that on August 28th, 1904, when Barney Oldfield plunged through the fence at the St. Louis fair grounds track and killed two men besides injuring himself, occurred on the same track and almost the identical spot at the race meet at that place on Monday afternoon, Labor Day. One man was injured so badly that he will probably die and another's condition is precarious. As was the case in the Oldfield accident two years ago, few of the immense throng saw the accident.

The misfortune occurred in a five-mile handicap. Several of the starters failed to go to the post and the Kobusch Company's 40 horsepower Mors was entered, with Victor Thomas as driver and Albert Benyon as mecanicien. The track had been liberally coated with oil and rain in the morning made it extremely slippery. Just as they were rounding the curve at the quarter pole and while going at the rate of fifty miles an hour the car skidded and before Thomas could point its nose to the center of the track, had plunged through the outer fence and ploughed up eight feet of boards. The car was stopped about 40 feet from the fence. The body of the car was demolished and Thomas was pinioned between the seat by a two by four plank that had been torn from the fence. His right leg, half way between the knee and ankle was crushed and broken in several places between the knee and hip. Benyon's nose was broken, and his left leg, hand and chest were badly bruised. It is also feared Benyon has several fractured ribs and that he may be injured internally. Both the injured men were placed in an automobile and rushed to a hospital, where it was given out later that Thomas's leg would have to be amputated if he rallied sufficiently to undergo the operation. The news of the accicdent soon circulated and created considerable excitement, but the 10,000 spectators in the grandstands quieted down and witnessed some good racing.

There was much changing about in the program, and this caused some confusion. The hardest fought event of the afternoon was a fifty-mile race, open to stock touring cars, although it resulted in two protests. C. B. Coburn, who drove the car which finished third, protested Grinham and Good, claiming the latter did not drive fully equipped stock touring cars. Coburn claims the judges decided in his favor and gave him first. Good, who drove the Clément-Bayard car, on the other hand, claims that the judges decided he was inside of the rules, because he had two seats on the rear of his car instead of the one on Grinham's Packard, and disqualified the latter, a proceeding which would give Good the race. The judges scattered immediately after the race and the matter will probably go to the American Automobile Association before it is finally settled.

Fred Grinham, in a 24 horsepower Packard, and Fred Good, in a 45 horsepower Clément-Bayard, had the contest pretty much to themselves and hung well together throughout the race. Good led during the early part, but started to lose his lead after five miles had been reeled off. From then on until the forty-mile post, he lost ground until he was a quarter of a mile to the bad, which, by the way, is not bad for a long contest of this kind. There was a great deal of excitement in the last two miles when Good steadily closed up the gap and looked as though he was going to take the lead from Grinham in the last mile. Grinham hung on long enough, however, to beat his opponent to the tape by a quarter of a second, with the crowd cheering wildly. Ten cars started in the event of which six finished. William Bagnell, in a Cadillac, was an added starter and he finished third well behind the two leaders. Bert Dingley, in a PopeToledo, was fourth, and then came Reyburn in a Royal and L. A. Hillman in a Mors.

In the ten-mile open, A. C. Webb, in his Premier racer, got a 50-yard start on the other cars, C. A. Coey failing to start on account of a breakdown while warming up. Webb led for the first mile without any trouble, but after the first lap Bert Dingley began to crawl up and for the next two miles the spectators saw a battle royal. Dingley had the lighter machine and could hug the pole closer on the turns. Several times he tried to slip through on the pole when Webb ran wide. Then mud spattered into Dingley's car and got mixed up with the mechanism and he dropped back. Even hard driving in the last two miles failed to get him up to Webb again and the latter won by a quarter of a mile. Fred Good, in the Clément-Bayard, finished third and W. H. Freeberg, in his freak Buick, was a bad last.

Two of the other races on the program went to J. D. Burnham, who guided a Jackson around the slippery turns. The first was a three-mile open for stock cars valued at $1,500 or less, and the other for cars selling at $2,500 or less. In both events he scored an easy victory.

The second race on the program was the one in which the accident occurred and this was won by A. Moll, in a Packard, by a good margin from Webster in an American Mors, the winner having a 50-yard handicap. The race open to St. Louis chauffeurs was captured by Fred Grinham in the same car in which he won the fifty-mile event. Charles Fabian, in a Pope-Toledo, gave Grinham a good race during the early stages, but Grinham eventually pulled away and won out as he pleased.

O. A. Hill tried to break the track record for five miles, but the mud slowed the time considerably and the best he could do was to go five laps in 7:26. The summaries of the events follow:

Three miles for stock cars listed at $1,500 or less—Won by J. D. Burman (Jackson); second, A. H. Ganley (Marion). Time, 5:12.

Five mile handicap—Won by A. Moll (Packard); second, G. B. Webster (Mors); third, Leon Solomon (Pope-Toledo). Time, 7:40⅕.

Five miles for stock cars listed at $2,500 or less—Won by J. D. Burnman (Jackson); second, William Lohse (Pope-Hartford); third, William Bagnell (Cadillac). Time, 6:43.

Five miles for St. Louis chauffeurs—Won by Fred Grinham (Packard); second, Chas. Fabian (Pope-Toledo); third, N. Walcher (Packard). Time, 6:46⅕.

Ten miles, free-for-all—Won by A. C. Webb (Premier); second, Bert Dingley (Pope-Toledo); third, Fred A. Good (Clément-Bayard). Time, 12:00.

Fifty miles for stock touring cars—Won by Fred Grinham (Packard); second, Fred Grinham (Clément-Bayard); third, C. B. Coburn (Cadillac). Time, 1:10:38⅕.

Binghamtons to Endure in October.

Fifty members of the Binghampton (N. Y.) Automobile Club have decided to hold an endurance run to New York City during the first week of October. The contest will be governed by the Glidden rules with some revision. The run will start from Binghamton on October 2nd, being timed so that the tourists will reach New York to witness the running of the Vanderbilt cup race. The winner will receive a cup donated by William G. Gatz and Fred E. Barnes.

Rhode Islanders to Test Law.

At a meeting of the Rhode Island Automobile Club, held at Providence, on Friday evening last, to consider what action should be taken relative to the interference with automobilists, it was voted that a test should be made of the right of a town to pass and seek to enforce any restrictive ordinance pertaining to vehicular travel where there is a State law covering the same. It was not given out who would be the "lamb" offered for "sacrifice."

Few Entries, but will Try Again.

Although scarcity of entries which necessitated one postponement and then a decision to abandon the misnamed affair, some members of the New York Motor Club are still bent on running their so-called national economy contest. Despite the convincing apathy and lack of interest and the approach of snowtime, they have selected the first week in November for the event—the third selection of dates.

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QUEER QUIRK OF THE LAW

Lack of Numbers on Lamps in Daylight Caused an Unusual Situation.

Rather an interesting and complicating situation arose in Boston recently with the police department and the rules governing the use of motor vehicles on the one hand and Fred Crittenden with his Premier car on the other. Early in the afternoon Crittenden was stopped by a policeman on the ground that the car he was driving was not carrying the right numbers, namely other than those issued by the Highway Commissioners. About 7 o'clock that evening he drove another car to the door of his residence on Wesyland avenue and just as he alighted therefrom a policeman stepped up to him, and according to the story that comes from Boston, said: "You can't drive that car. It has no numbers on the lamps."

"But the lamps are not lighted," said Crittenden.

"Well, if you drive that car without the lamp numbers I shall have to summons you into court," was the reply of the blue coat.

"Then I won't drive it," was the rejoiner.

And so Crittenden, with remembrances of his afternoon experience green in his memory, decided to let the car remain there all night long. He had no other car to drive and so determined to turn in to bed. About an hour later he was called on the speaking tube and a voice from below said: "I am a police officer and I want this automobile moved off the street."

"If I drive the car I am threatened with arrest because it has no numbers on the lamps, and it will remain where it is until morning."

"If it is not removed I shall arrest you for blockading the street," came in a voice up the tube.

"I don't see but what I am due to be arrested either way, and as I have retired for the night I guess I will let the car stay where it is," said Crittenden, and back to bed he went.

About 10 o'clock there came a violent ringing of the door bell and "Crit" went to the tube and asked what was wanted.

"I am a police officer sent by headquarters to escort you and your car anywhere you may desire to go," was the message sent up the tube.

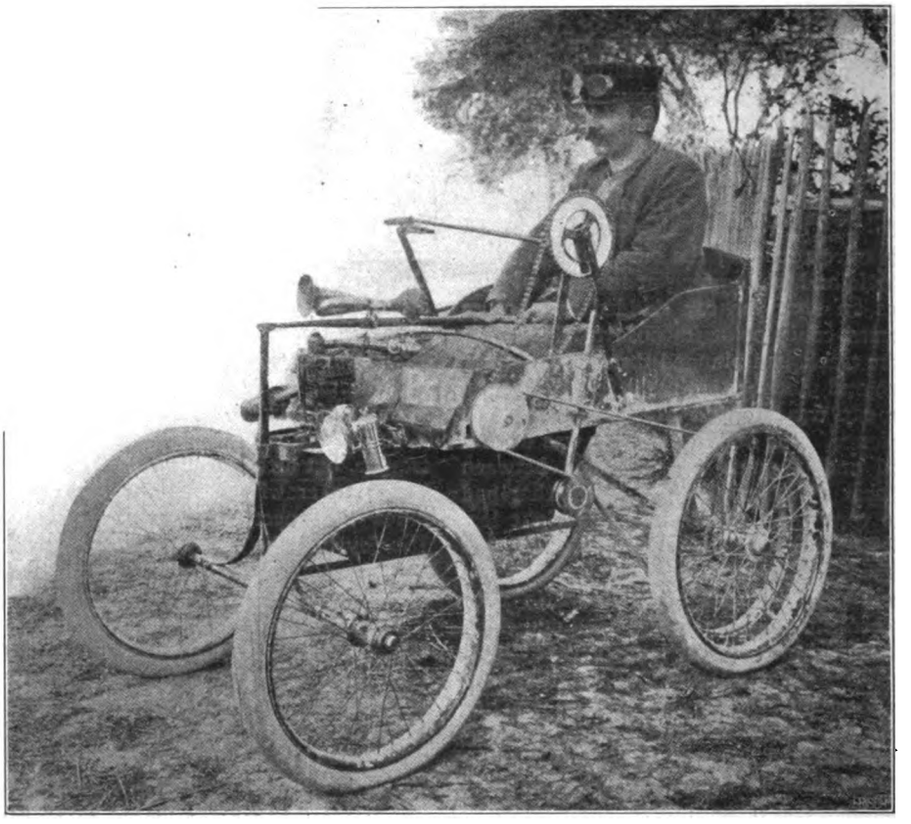
"But," said Crittenden, "I will get arrested if I drive that car, there is a policeman who has been waiting around the corner for an hour for me and I am not going to get in any trouble with the law."

"You come down and drive the car where you want and while I am with you you will not be arrested," said the officer.

"All right," said Crittenden, "I will be down as soon as I get dressed." It took Crittenden some time to find his clothing and then he walked down to the door and sure enough, there stood a policeman awaiting his arrival. The pair got in the runabout, Crittenden thereby gaining the distinction of being the first motorist in Boston to be escorted by a policeman in order to prevent arrest for a violation of the rules and regulations governing the use of motor vehicles. It took but a few minutes for the car to reach the garage. There the police escort was very politely excused from further attendance upon his honored guest.

A Motor Car for Cripples.

It has remained for a German watchmaker to construct an automobile that is not only readily started from the seat, but from which point of vantage every adjustment of the engine may readily be made. It has several other peculiararities in addition; its construction dispenses with the need of a differential; its weight is considerably under the hundred pound limit, 90, to be exact, and last but not least by any means, it may be run by hand when the emergency arises that makes this necessary. It is not a freak machine, its peculiarities being due to the fact that it has been specially designed and built for the use of a helpless cripple—that is, helpless so far as control over the ordinary means of locomotion provided the average man is concerned.



Being unable to use a car of the ordinary kind to any advantage, the German watchmaker built this one for himself. It has tubular steel axles and the wire wheel running gear of former days that has since been relegated to the racing type of automobile. This is surmounted by an angle iron frame of original design, as is also the body consisting of a single home-made bucket seat. Where the ordinary man's feet would come, room is found for the engine which is a single air-cooled vertical cylinder of less than two horsepower—the same as usually employed on the light motorcycles.

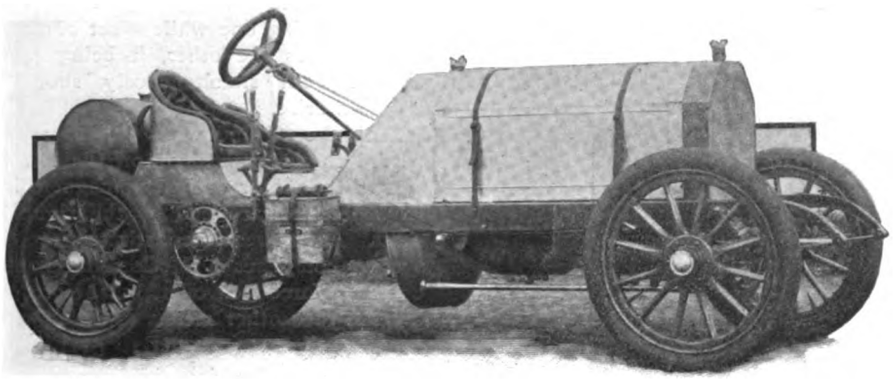
The motor drives by chain to a countershaft from which a wide belt is run to the left hand wheel, this being the only one driven, thus dispensing with a differential. The speed is regulated by means of an idler attached to a lever within convenient reach. Connected to the same countershaft there is a chain and pair of sprockets with a crank on the upper one so that the motor may be turned over by hand to start and by which the entire machine may be propelled by hand should the emergency arise, a clutch being provided to enable it to be disconnected from the engine. The carburetter, ignition switch and timer are immediately under the hands of the sole occupant while every part of the engine may easily be reached without any difficulty. On the whole the appearance is very much that of a motor invalid chair as may be judged from the accompanying illustration. Unlike the majority of home-made machines, this one is constructed of special material throughout and is intended for practical everyday use. In fact, the alleged "helpless" cripple is said to have made a number of short tours in it going 50 to 100 miles from home.

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THE AMERICAN CANDIDATES FOR THE CUP TEAM

The Locomobile.

All rumors as to whether or not there was to be a Locomobile among the contestants for the honor to represent America in the Vanderbilt race next month, were finally set at rest by the publication of the official entries last July, but neither before

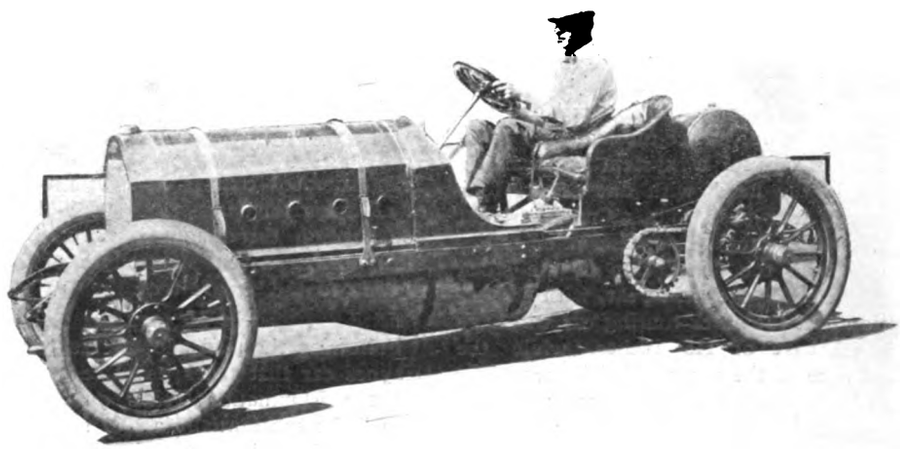


90 HORSEPOWER LOCOMOBILE

or since then has anything whatever been made public as to the type of car that would be used. Stories have been current to the effect that the same combination—Dr. Thomas's Locomobile with Tracy at the wheel, which performed so creditably in both the elimination trial and the race itself in 1905, would again appear on the scene and this has been verified to the extent that Joseph Tracy will drive and Albert Poole will act as his mechanic—the same team as last year, but an entirely new car has been built for this year's race and, profiting by last year's experience when a cracked cylinder on the very eve of the contest itself all but destroyed Tracy's chances of participating in the race at all, the new car has been built in duplicate. Like its predecessor, it is conservatively rated at 90 horsepower, the cylinder dimensions being 7¼ inches bore by 6-inch stroke. All those features which long experience in the building of stock cars have proven to be highly efficient as well as representing a miximum of reliability, have been reproduced on a larger scale so that the racing car is in short, little more than an enlarged edition of the stock Locomobile touring car. In appearance it is scarcely to be distinguished from its predecessor.

The chief point of difference is to be found in the placing of the inlet valves in the center of the heads of the cylinders and in the use of aluminum housings to encase them. They are actuated by walking beams and tappets operated from the admission cam shaft, the only reason for the change being the reduction in the weight thus brought about. The ignition is of the make and break type with low tension magneto that forms the standard equipment of the stock car. The magneto is located on the exhaust side of the motor while the ignition cams for the make and break mechanism are on the inlet cam shaft. The pump is also located on the exhaust side of the motor and both it and the magneto run on a separate shaft gear driven from the exhaust cam shaft. Contrary to general practice, all the timing gears are at the rear end of the motor and are completely enclosed.

The transmission is of a special type providing three speeds and reverse and giving a direct drive on all three of the forward speeds, the final drive being by means of side chains to the rear wheels. A running brake operated by a foot pedal is placed on the differential shaft, while emergency brakes operated by a hand lever are on the rear wheels. As already stated, instead of merely duplicating the various parts of the mechanism, and particularly of the motor, as was done last year, two complete cars have been built and one will be held in reserve for use in case of accident to the other.



90 HORSEPOWER APPERSON, EDGAR APPERSON UP

The Apperson.

As a try out on the road the Apperson racer that will compete for American supremacy in the Elimination Trials a fortnight hence, was run over the road from Kokomo to Chicago by Edgar Apperson last week. As will be apparent from the photograph showing the designer at the wheel, it is patterned on typical racing lines of the Continental style and should be able to give a good account of itself. The motor embodies all the features of Apperson design that have been evolved by this firm in the building of their stock cars. Its cylinder dimensions are 6¼ by 5½ inches and it is rated at 90 horsepower; several motors like it have been built this season and fitted to Apperson cars. It has plain bearings, but Hess-Bright ball bearings are employed in the wheels while roller bearings are fitted to the transmission.

Duplicate systems of ignition have been provided, one being taken care of by a Remy high tension magneto while the other relies on an accumulator. A McCord oiler is employed for the lubrication, supplemented by a hand pump supplying pressure to a large oil tank at the rear of the car. A hand pump is also used to generate pressure for the gasolene supply. The car has been specially built for the purpose throughout as is evidenced by the fact that its frame is of hot hand-hammered nickel steel, while the hangers, axles, steering connections and similar parts are also made of hand-forged nickel steel. Weight has been saved without sacrificing strength wherever possible by drilling the parts out.

A selective type of change gear with a range of four speeds ahead is fitted, the final drive being by means of double side chains with sprockets of the same size and quite close together. A single set of brakes acting on drums on the rear wheels is employed. They are operated by a hand lever interconnected with the clutch in the manner usual with the emergency brake on stock cars.

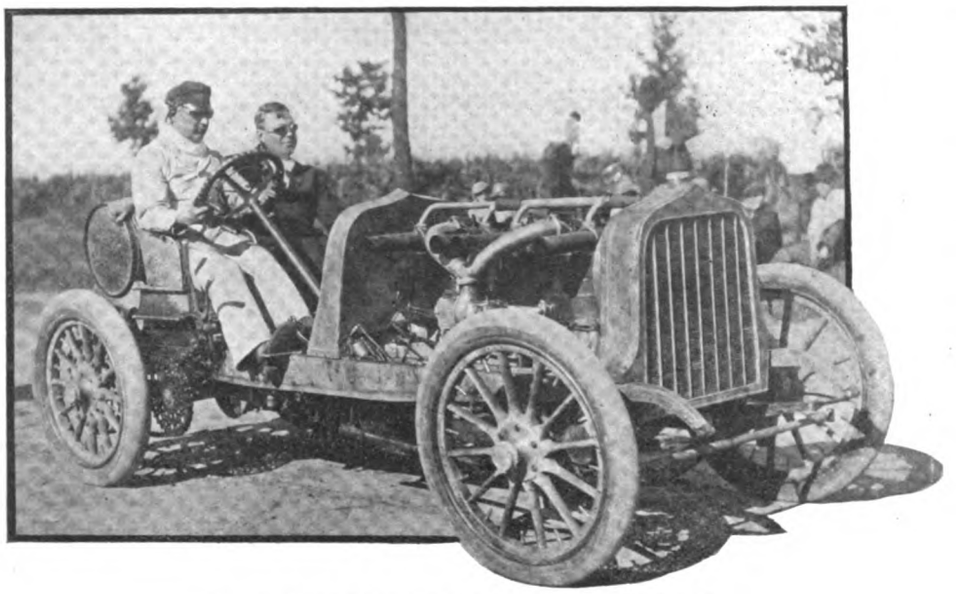
As shown in the photograph, the Apperson racer is fitted with 32-inch wheels and stock axles, but for the contest it will be equipped with 34-inch wheels shod with 3½-inch tires front and 4-inch tires on the drivers, and the special axles built for it will be in place. All the tires as well as the

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spares to be carried will be on removable rims although just what form or whose make the latter will be has not yet been made public.

The Pope-Toledo.

The Pope-Toledo racer, which has been entered in the Vanderbilt cup race by the Pope Motor Car Company, of Toledo, O., and to be driven by the well-known Herbert Lytle, has now arrived in New York. Bert Dingley, who drove the "Pope-Toledo" to victory in the Vanderbilt Elimination race last year, will act as mechanic on the racer for Mr. Lytle in this year's race.



120 HORSEPOWER POPE-TOLEDO, H. H. LYTLE AT WHEEL

The car is of 120 horsepower, and the general construction is in keeping, it is said, with all the new features which will appear in the 1907 Pope-Toledo stock touring car. The car has four cylinders, twin heads, cast integral; individual copper water jackets for each pair of cylinders; ignition by gear driven magneto.

The car is fitted with multiple disc clutch, running in oil, with a selective type of transmission, four speeds forward and one reverse. The valves are mechanically operated by means of a system of walking beams in the head, with one set of four cams and four push rods, as against eight used in other cars. This description tallies exactly with the description of the stock touring car for the next year, with the exception that the stock touring car will have a wheel base of 115 inches, while the wheel base of the racer is 104 inches. The size of wheels on the stock touring car will be 36 inches, whereas on the racer they are but 34 inches.

This is the first racing car ever built by the Pope factory with a four speed transmission. The regular stock touring car next year will be 50 horsepower, and the racer herein described develops fully 120 horsepower.

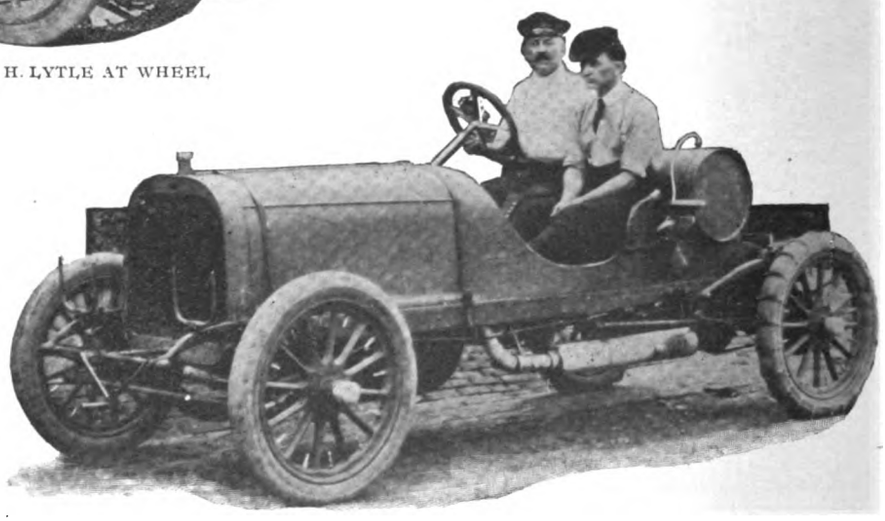
As has been the policy of the Pope Motor Car Company in the past, they are very conservative as to allowing detailed specifications of their racing cars to be published prematurely. It is safe to assume, however, that the very best efforts of their efficient mechanical forces are here represented, and if one's judgment is to be influenced by the time required to build this car, there can be no question as to its capabilities. The estimated cost is $25,000; this is not at all surprising, inasmuch as all the steel construction throughout is chrome nickel steel, having a tensile strength of 225,000 pounds to the square inch.

The Haynes.

Following the plan adopted last year, the Haynes car that takes its place at the line for the Elimination Trials on September 22, will be substantially a 1907 stock model. It is the first of the American cars, the details of which have been made public thus far that is fitted with a muffler. But for the low driving seats and the extra large gasolene tank just behind it might readily be taken for one of the high powered runabouts that are daily becoming more common.

The engine, which is of the usual Haynes construction, has independently cast cylinders measuring 5¼ by 6 inches and is rated at 55 horsepower, making it in all probability the lowest powered car to be entered this year. The motor has been placed somewhat further back on the chassis than usual and the transmission gives a ratio of one and a half to one, these practically constituting the only departures made from the regular stock model. The ignition system is in duplicate a Remy high tension magneto supplying one while a set of accumulators serves the other, it being possible to use both simultaneously should the occasion arise.

Both the oil and water pumps are connected to the cam shaft on the left hand side of the motor, while the magneto is run from the forward end of the right hand shaft. As at present constituted, the oiling system comprises a McCord mechanically operated force-feed oiler, but before entering the race other means of oiling will be fitted to the car in order to guard against accidents. The car is pictured in the accompanying photograph with John Haynes at the wheel. It will be driven in the race by F. Sweigart.



55 HORSEPOWER HAYNES, JOHN HAYNES AT WHEEL

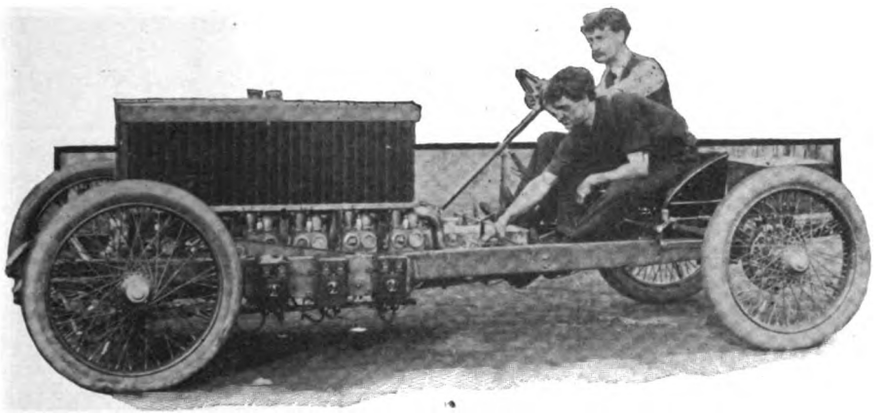
The Maxwell.

Undoubtedly the most sensational of all the cars which will figure in connection with either the elimination or the Vanderbilt race itself, and the work of which will be watched with keenest interest, will be the twelve-cylinder Maxwell, which has this week been put upon the road for its initial try-outs. Besides being in many ways, an innovation aside from its multi-cylinder feature, there are numerous points about its construction which are at once ingenious and noteworthy. Essentially, it is a light racing machine of the unclassified, or special type, from which has been eliminated everything not germane to the business of straightaway travel on a smooth highway. Technically, it is a remarkable

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production in many more ways than one. The engine may be classified as an extension of the horizontal opposed type, the units being slightly staggered in their arrangement in order to permit of the use of a single crank pin for each opposite pair, there being no flywheel, however. The frame and crank case are built in one casting which also includes the change gear device, the whole being mounted on a three-point suspension. Ignition is by the familiar jump spark method with double coils arranged along the sides of the frame contiguous to the cylinders which they govern, thus allowing for a minimum of high tension wiring. The mechanism is entirely enclosed, and this feature, together with the arrangement, gives the machine a most unconventional aspect.

The most novel point in connection with the power plant is the method of cooling the cylinders, which is, it is safe to say,



THE 12 CYLINDER MAXWELL

quite without precedent. Two tubular radiators are used, ranged along the car, fore and aft, side by side, occupying positions near the sides, and directly over the cylinders. From the base of each is tapped a liberally proportioned pipe, directly to the jacket over the combustion head of each cylinder, thus securing an unimpeded return from the jackets without possible let or hindrance to the flow of the cooling water. By this means a thermo-syphon system is employed in which the maximum of induction to circulation is obtained, and one which, on this account, should prove to be most effectual.

A multiple disc clutch is used for controlling the application of the power to the wheels, which transmits through a propeller shaft and bevel gears to the rear axle, which has no balance gear. Two speeds and the reverse are provided for, the ratio of motor speed to drive on the high, being 1 to 1½.

The chassis, which is of the simplest possible description, consists only of a channel steel frame suspended on semi-elliptic springs, the forward pair being below and the rear above the axles. Wire wheels are used, of 34-inch diameter, shod with 4 and 4½-inch tires front and rear, and the wheel base is 115 inches.

In connection with the action of the motor, it is interesting to note the order of cylinder firing, which, naturally, is governed by several considerations not found in a motor of fewer elements. Beginning at either end, and numbering the cylinders odd on one side and even on the other, the order is: 1, 10, 11, 2, 3, 12, 7, 4, 5, 8, 9 and 6. In this way the explosions take place first on opposite sides and five cylinders apart, gradually progressing alternately toward the center during the cycle of the machine, when the last two to fire are two cylinders apart. Despite the lack of balance wheel, the frequency of the explosions is so high that a very even torque is said to result, the motor running with extraordinary uniformity. Taken as a whole, the machine is one of those experimental types that are more or less rare at the present day, but it is to be distinguished from other departures from the conventional that have preceded it by the many innovations it embodies. The best test of their value will be the behavior of the car in its trials.

Says Belgium is Worth Cultivating.

According to Consul-General Roosevelt, of Brussels, the outlook for the motor car industry in Belgium is very hopeful, local makers are producing good cars, and the demand both for them and for cars of foreign manufacturs, is growing constantly. Especially is it noticeable that the commercial type of vehicle has begun to be appreciated, and that commercial houses are increasing their application at a healthy rate.

"The manufacture of motor cars is very active in this country, especially as concerns touring cars," he says. "For the last two or three years business houses have been making a larger use of motor cars for commercial purposes, and I understand with unvarying success as regards cost of keep and working capacity. Most of the motor cars in use in this country are of Belgian and French manufacture, the latter being slightly ahead of the former in many points.

"Motoring has greatly increased in favor in Belgium, as the roads are generally very good, being hard and smooth and fairly well kept. The most popular cars are those having two or four cylinders and from 10 to 50 horsepower. If American automobiles of every description were introduced with the same zeal as those of other countries, I am positive our manufacturers would in a short time do a profitable business in this country.

"The duty on automobiles coming into Belgium is 12 per cent. ad valorem."

Protecting the Tail-light.

It is safe to say that a very large proportion of the difficulty commonly experienced by motorists in keeping the average tail-light burning properly is due to the great quantities of dust and dirt in which it is constantly being steeped while the car is on the road. The rear of the machine is always covered with a thick coating of dust, while when in motion clouds of the light grey mantle are swirling about the lamp, which, no matter how carefully it may have been made, is bound sooner or later to become more or less clogged as to its ventilators. This, naturally, would tend to impair the proper action of the burner, but probably would not in itself furnish any cause for great complaint were it not for the fact that a small amount of the dust works inside and settles on the wick, effectually preventing the capillary action on which the flame depends.

A simple method of preventing this during such time as the lamp is not in use is to employ a removable slip cover of waterproof material, such as can be purchased ready-made, or even made by the driver from oilcloth in a short time. Still another method is to remove the lamp entirely when not in use, securing it somewhere within the body or, possibly on the dash board, where it will be free from the Dust. When burning, it is likely that the draught and the heat of the flame may serve to protect the interior from ill effects, provided only that it has been perfectly clean at the time of lighting.

The Pickling of Castings.

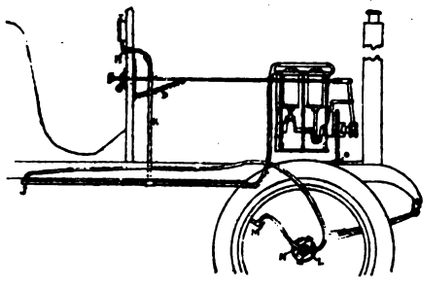
Pickled castings, like pickled pears, are an improvement over the raw material, and for a somewhat analagous reason. The process tends to soften the skin or outer layer of the metal, rendering it easier to work and less hard on the tools. The pickle, however, is essentially different, being a solution of sulphuric acid, the strength varying from one in four to one in ten, according to the precise nature of the process employed.

William C. Campbell, whoever he may be, is trying to establish an automobile factory in Leamington, Canada. All the citizens are required to do is to loan him $30,000.

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Automatic Inflator of Tires.

Ever since tire pumping came along with pneumatic tires, to bring variety into the life of the motorist, the average chauffeur of inventive inclination has been studying how the thing could best be done mechanically. Consequently, many schemes have been developed with this in view, not a few of them displaying some attractive features, but nearly all at fault, in that they did not



make it possible to inflate the tires without leaving the driver's seat, and with the car at rest or in motion, as the case might be. As a matter of fact, this seemed almost impossible of accomplishment. The most recent device in this line, however, is successful in this respect, without being either clumsy or impracticable.

The system, which has just been brought out by the Tilley-Pratt Company, Essex, Conn., consists in piping an air-line from a compressor suitably mounted near the motor and connected to it by means of a positively actuated clutch, and tapping into it branches leading to the tire-valves through swivel connections attached to the outside of the hubs, and lead by flexible tubing to the pipe line. The connections on the wheel hubs, which are unique, comprise nothing more elaborate than a substantial clip fitting the hub and having a nipple from which a short length of rubber tubing is lead to the tire valve. At the centre of the hub and extending from the end to a right angle bend, is a piece of tubing, capable of rotating with respect to the wheel and connected through a suitably packed joint, with a chamber, in line with the tube leading to the tire, this being connected by flexible tubing with the pipe line.

By this means, the connection between the pump and the tires is maintained at all times, irrespective of whether they are stationary or in rotation, the process of inflation requiring simply the starting of the pump and its stopping when the required pressure has been attained, as shown by a gauge mounted on the dash. If, as is usually the case, only one of the tires requires inflation at a time, the natural equalization of the pressure in the system will cause the valves of the others to remain closed until the pressure has become greater than that within the envelopes.

In the complete system furnished by the company, which includes a compressor and engine connections in addition to the inflating system, an automatic regulator is provided, which cuts out the compressor when the pressure in the pipe line has reached the proper point as previously determined. This is accomplished in a simple manner by means of a spring controlled piston, which rises when the pressure has reached the correct amount, at the same time tripping the clutch shifting rod, which is then returned to its normal position by a spring, thus stopping the compressor.

Hartford's Improved Turnbuckle.

For 1907 and thereafter a new turnbuckle will be a feature of all Hartford Universal rims, taking either Dunlop or Clincher types; it is shown by the accompanying illustrations. It is made on the same principle as the turnbuckle originated by The Hartford Rubber Works Co., in 1904, but is improved in ease of operation by the use of a square-end crank wrench in place of the former round-end key.

This device, which is unique, enables one to adjust the tire to the rim with perfect

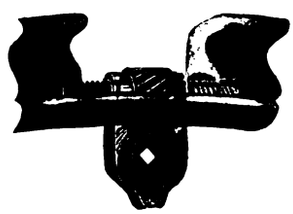


success, the turnbuckle taking up any variation in the ring or rim. Thereby that perfect fit of tire to rim, or vice versa, which is essential to safety as well as to long, even wear, is secured, and the processes of attachment and detachment greatly facilitated.

It is, in brief, a small worm gear, made integral with the right-and-left threads connecting the two ends of the expanding ring in the rim. Threads and gear being one piece, no "give" is possible to either, and the action of spreading apart—for detaching and drawing together—for attaching—is made positive and effective by the square-end crank wrench fitting the center opening in the portion below the rim. This wrench takes the place of the former round-end turnbuckle key, as an additional convenience.

Great care has been taken to give the turnbuckle the most positive location, so that no part of it can move in the slightest degree from the opening through which access is had. The larger cut shows the turnbuckle in process of loosening for detachment, or tightening for attachment. When a space shows between the ends of the ring, as in the illustration, it is loose and as soon as the ring is taken off—nothing holds it now—the deflated tire may be removed for repair or replacement. Conversely, after the tire and rim are put back, the turnbuckle is screwed up, and the tire is ready for inflation.

In a word, the turnbuckle is not only a means of adjusting the tire to the rim, or vice versa, but it assists greatly in both the detaching and attaching processes. Again, by reversing the ring so as to take



the Clincher as well as the Dunlop type, the turnbuckle works on exactly the same principle, and the adaptability to both types is the fundamental basis of the Hartford Universal Rim.

Lamberts Done in Gold.

One of the most "fetching" advertising devices ever produced, and one which at the same time makes its appeal through its artistic combination of ornamentation and business display, has just been developed by G. B. Londerbach, sales manager of the Buckeye Manufacturing Company, Anderson, Ind. It takes the form of a massive folder in brown cover paper, opening in three parts. On the two extreme pages, are mounted large photographs of the Lambert car on white cartridge paper mats edged with gold, and covering some details of the cars, also done in gold, while the central panel is occupied by a personal appeal to the recipient in the form of a typewritten letter.

How to Color Brass.

To color brass blue-black, make a saturated solution of copper carbonate in ammonia, in the approximate proportion of one part in ten by weight, shaking well as the copper carbonate is added in small quantities, and finally diluting with water in the ratio of one to three. The brass to be colored should be made chemically clean, either with fine emery cloth, or with a caustic soda solution, and then dried, after which the solution should be applied and allowed to remain on the surface for two or three minutes, agitating continually. Afterward it should be dried with sawdust or clean waste. The solution when not in use should be kept tightly corked.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50 cents. The Motor World Publishing Co., 154 Nassau Street, New York.

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MAKING ROADS WATERPROOF

Methods in Vogue and Their Good Results —Effect on the Dust.

In a lecture recently delivered before the British Association at York, England, Douglass McKenzie presented a thorough review of the subject "Waterproof Roads as a Solution of the Dust Problem," incidentally taking a fall out of the popular conception that tarring is the last word in the matter. After pointing out the vital connection between the foundation and the covering of the road in their respective functions, he showed how the natural tendency of the roofing was to break up into dust under the action of tires and hoofs, forming at once an undesirable and unspeakably offensive nuisance, and at the same time reducing the thickness of the covering to ultimate exhaustion.

Refering to the selection and laying down of material in the average road, he said in part: "Material for recoating is selected with a due balancing of its value as a road material, and its cost at the site. It is broken to a size which is entirely the whim of the particular surveyor. * * * It is generally spread about 3-in. thick, steam rolled dry, then soaked with water, covered with so-called binding material—in the worst cases roadside soil or scrapings, perhaps gravel, but in the best cases chippings of the same material as the road metal—then it is again steam rolled 'to the satisfaction of the surveyor.' The result is an agglomerate composed of large pieces of stone, with the inter-spaces filled with ground-up road metal, binding material, or organic matter. * * * It will thus be seen that the dust originates in (a) binding material, which loses its cohesion when it dries; (b) ground-up road metal; (c) organic matter originating with the horse; and (d) dust blown on to the road surface from the surrounding land. There is only one real remedy for (c) and (d), viz., to make a thoroughly smooth waterproof road, so that this dust will be washed off into the channels by every smart shower. For (a) and (b) the remedy is twofold, viz., use a material sufficiently tough to prevent any movement of the stones on one another under traffic, and such that it is equally efficient in all weathers. The answer in both cases is "waterproof," but the selection of a suitable waterproofing and binding material is not by any means easy.

"There are many who will advocate a hard granite covering, and who consider that such is sufficiently dustless for all practical purposes, but it must be admitted that there is a certain amount of dust from a hard granite road, and even when binding material is from the same quarry there is a certain amount of water absorption at the surface, and, consequently, there are times, especially in the winter, when the road is a spongy mass. The very fact that there are interspaces between the stones is proof that water can lie on the road and gradually percolate to the lower layers, and so such a road has in itself the elements of destruction, which it should be the aim of every engineer to avoid.

"A very practical method of waterproofing such a road is to paint the surface by hand with distilled tar. * * * The usual process is to sweep the road free from dust, apply the tar hot with an ordinary watering can, brush it over so as to work it into all the surface hollows, and then to cover it with a fine gravel to prevent it sticking to the tires of passing vehicles. It is very necessary that this should be applied only in hot, dry weather, and, in fact, this dry weather should have been continuous for at least ten days previous, so that the water has been completely dried out of the road. When this tar is applied for the first time, a second coating is necessary about a month later, and after that it is the practice to apply one coat each year. Waterproofing on this system is very effective for about six months of summer weather, after which it rapidly deteriorates, and by the end of twelve months the tar has to all intents and purposes disappeared. In the districts where this system has been applied everyone has felt the immediate advantage of the absence of dust, and it is only lately, after a longer experience, that the real evils of this system has become apparent.

"The first of these evils is a terribly greasy, slimy mud in the winter months, which contains a certain proportion of tar, sufficient to ruin any clothes on which it may drop. This greasy mud is far worse for side-slip than any which motor vehicles have previously encountered, and it probably has a deleterious effect on the varnish of cars and carriages. It also treads into houses on the wayside and ruins mats and carpets. The second evil has come to light recently in the shape of complaints from people living at the side of roads that have been thus treated. At first they were rejoicing in the absence of dust, so that they could leave their windows open and enjoy the fresh air, but they have been struck by the fact that all their linen has gradually become a dirty color which no amount of washing will remove. Examination shows that there is a slight dust raised which contains a proportion of tar, and that this falls in almost imperceptible quantities, so that its presence is not at first detected. * * * That this gradual spreading of tar must take place will be obvious from the fact that the whole of the tar painting ing has disappeared at the end of twelve months.

"The best known material for this purpose is that known generically as Tamac.

"It consists of blast furnace slag, broken whilst hot, and immediately immersed in hot tar. The tar oils penetrate right through the pieces of broken slag, and greatly modify its nature, so that under the steam roller it consolidates into a homogeneous waterproof coating. Very contradictory results have been recorded from the use of tarred slag, and investigation has shown that much blast furnace slag is over-limed, and when made into a road surface the free lime slakes, and the coating breaks up. The slag resulting from the preparation of "forge" pig iron is not over-limed in this manner, and should be the only slag used for this purpose. * * * * There is a strong feeling that slag is too soft a material to long withstand heavy traffic, such as traction engines and heavy motor wagons, and its length of life under the conditions prevailing on many of the main roads of this country is still a doubtful quantity. It is probable that its use will show an economy in some districts, but not in others.

"Some firms are also introducing waterproof road materials prepared from limestone treated in some way with tar. Limestone is an absorbent material, and the tar adheres to it very readily. The resulting road surface is very good, but, again, the material is of a somewhat soft nature, and its life under heavy traffic requires to be proved. The application of tar, whether in a raw state or treated by distillation, to form a waterproof granite road, has not been very successful. Great care is necessary in the first instance to thoroughly dry the stone, and even then there is a difficulty in getting the tar to adhere properly. Experiments have been made with the construction of a granite road by spreading the broken stone, dry rolling it in the ordinary way, and then pouring hot tar over it, instead of watering, for the final rolling. Close observation seems to show that when the road surface is in use, the tar is gradually worn the outer surface of the top stones, and then they absorb the water during wet weather, and afterwards sweat from the other surfaces, thus forcing themselves out of the mass of the road by a floating film of water below them. If the subsoil is of an absorbent nature, the tar will be found to have left the granite and to have saturated into the subsoil to a considerable depth. From the many examples of tar painting that the author has studied, he has come to the conclusion that the great mistake has been in the use of tar as it is usually sold. Much better results have been found when the tar has been distilled, as the process is usually termed—that is to say, when the ammomiacal liquors and other volatile parts have been distilled out. But this process of distillation is not sufficient, as the tar is still capable of considerable further alteration after application. In many cases, all that has remained after use in the tar paving has been a brittle substance of the nature of pitch, which fractures under the impact of steel tires, and the paving breaks up. What is required is the addition of some material that will toughen the tar,

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in much the same way that pitch is toughened for insulating purposes. A paving prepared with such a toughened tar should always remain sufficiently elastic to prevent fracture under the impact of steel tires, and at the same time sufficiently rigid to resist the drawing force of a traction engine driving wheel when it is used to impart motion to a string of loaded wagons.

"Unfortunately, the asphalts put on the market at present require a concrete foundation of great strength for their successful use, and, therefore, are impossible from financial considerations outside the large towns. It is not improbable that experiments with some refuse material worked up with Trinidad asphalt would result in producing a cheap waterproof paving, which would probably have to be laid in the shape of blocks. Unfortunately, no tests have been made with such a material under the severe conditions of country main roads, so that no information as to probable life or cost is obtainable."

When Clutches are too Fierce.

When a leather-faced clutch of the ordinary cone type begins to take hold too fiercely, it is quite likely that for some reason the relieving springs under the forward edge of the leather have in some way become deranged and fail to act as they should. The surface of the metal underneath the leather should be cleaned free of any accumulation of the paste formed of leather scrapings and oil, care taken to see that none of the springs are broken or straightened out, and the surface of the leather itself cleaned off with gasolene and treated moderately with castor oil. After the oil has worked into the grain, and the surplus has been removed, there should be no further trouble. In case the difficulty should continue, however, it is safe to assume that the motor and transmission shafts are out of line, and that the cone is not seating evenly all around. If this proves to be the case, the machine should be turned over to a regular repair man.

German Formula for Horsepower.

According to the formula which has been adopted by the German government as a basis for assessment of the new tax upon domestic motor cars, the horsepower of a motor is:

$$N=0.3xixdxdxs$$

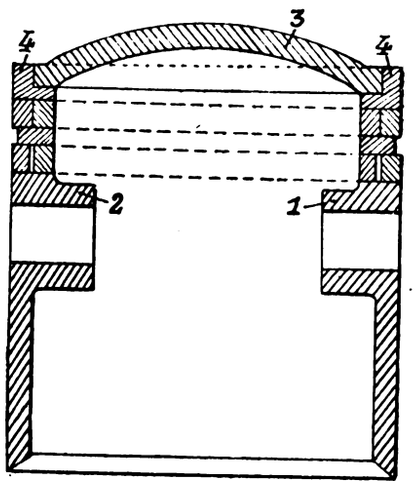
where N, is the horsepower, i, the number of cylinders, d, the diameter of the cylinders in centimeters, and s, the stroke in metres. As this takes no account of the speed, it is likely that in the near future the German market will witness a sudden rise in the popularity of high-speed, short-stroke motors, as the formula permits the taxing of such machines at rates far below their real power. The rating thus obtained, is nearly correct only for motors having a stroke of 15 cm., and running at a normal piston speed of 800 to 900 feet per minute.

MAKES DUPLICATION EASY

New Method of Piston Manufacturing to do Away with Casting.

A novel method of piston construction for internal combustion motors has been suggested by Louis Renault, of the French house which bears his name, which intends at once the simplification of construction in large quantities, and the assurance of uniform formation as to thickness of body and weight of material throughout. The principle, which is that of sectional formation, is illustrated in the accompanying figure drawn from the patent specifications.

As will be seen, the main body portion



of the piston is cast or drop forged without the head, but including the bosses, 1 and 2, which support the wrist pin. The head, 3, which would be formed separately of the same material, would be either shrunk into place, or screwed and secured in some approved manner, the method shown in the illustration being slightly different in this respect, in that a series of rings, 4, are employed to form the upper portion of the piston, and the slots for the packing rings The manner in which the fastening of the parts would be done in this case, is not shown.

A piston thus constructed could be case-hardened if necessary, the use of mild or soft steel determining the need of such treatment. The advantages claimed for the method are that the metal would be uniform in all points, both in thickness and quality; that the product would be light and strong, from the use of high-grade materials; that the parts could be made at slight expense; and that absolute uniformity and interchangeability would result. Piston design, is a feature of motor car construction of which but little is heard, comparatively speaking, partly because of the general conformity of practice in construction and use, and partly because for some time nothing in the way of striking novelty has been introduced. Nevertheless, since the casting process is one which for many reasons it is well to avoid where possible without loss to the value of the structure, notably where the substitution of the drop forging process may be made for it, this idea may well be looked upon as an item in the possible perfection of the gasolene motor without any material addition in its cost.

Brazil as a Market.

There has been a building boom in progress in the city for some time, writes Consul-General Anderson, from Rio de Janerio, in connection with which has been undertaken the construction of several fine avenues and a boulevard system which contemplates something like 17 miles of an asphalt drive along the bay. "Naturally," he continues, "such an opportunity for automobiles is attractive, and there are not only a large number of machines now in use, but the number is rapidly increasing.

"In line with the general trade situation here, the natural disposition of Brazilian buyers has been to go to Europe for their machines, but there are quite a number of good American machines here, and it seems probable that all that is necessary for more American trade in this line is proper efforts to sell the American machines. It is a matter of fair competition in a fair field, and that American manufacturers have not sold more machines is due to the lack of efforts in that behalf. In a city which, with its suburbs, reaches well toward a population of a million, there is a considerable field for further effort. There seems to be no preference in the way of machines, all grades of all kinds at all prices being in use. As elsewhere, the majority of the automobiles in use are of medium grade and medium price.

"There is a similar, though smaller, field in most of the cities of Brazil, and, with the general wave of improvement now sweeping over these cities, there will likely be increased demand for automobiles."

Six Rules for Good Results.

In order to get the best possible service from a motor, the six following conditions should be observed unfailingly:

1. Keep the motor speed as nearly as may be at its normal, that is to say, at the speed at which it develops its most efficient work, at all times.
2. Except in cases of emergency, never permit it either to race or labor.
3. Run with the time of ignition advanced to the limit of smooth working.
4. Adjust the carburetter to yield the weakest mixture which can be obtained without misfiring under any circumstances.
5. Never allow the motor to run without lubricant, or to become overheated.
6. Do not over lubricate.

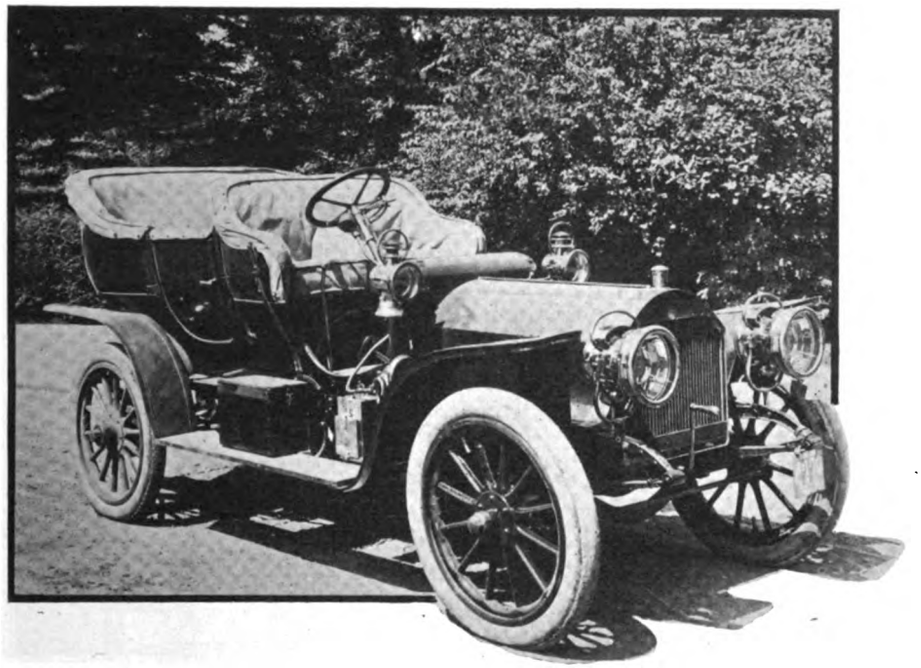
"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding.

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IMPROVEMENT OF A CAR

Features that have Brought it to the Front —Several Innovations Incorporated.

From what was practically an assembled car in the days of its inception, the Stoddard-Dayton has been developed in the course of a few years into one that is now turned out practically complete from the home plant. In fact, every part of the new 1907 model which is here pictured is manufactured by the makers with the exception of those few that always have and always must be considered as accessories and entirely without the province of any but the specialist.



The motor which was formerly of the Rutenber type is now of special design and is slightly larger than that used heretofore, the cylinders measuring 4⅝ by 5 inches and developing 30 to 35 horsepower at a moderate speed. The cylinders are cast in pairs and the units are not crowded in assembling them on the crank case. A very generous sized opening is left in the water jacket just over the head of the cylinders which not only insures a better casting, but permits of the jacket space being thoroughly cleaned out. After the castings are machined these openings are closed with brass plates. The valves are mechanically operated and oppositely disposed and a novel innovation in this connection which makes for accessibility is the making of the cam shaft bearings of a greater diameter than the maximum projection of the cams themselves, this permitting of the withdrawal of the cam shaft merely by loosening two nuts.

The pump is located about midway of the motor on the left hand side and a departure has been made in its design, which though small in itself, serves as an indication of the painstaking thought that has been devoted to the design of the car as a whole. This consists of making the intake connection from the bottom of the radiator in the shape of a Y so that when the motor is running no water reaches the gland and either the latter or the grease cup just back of it may be removed without permitting the water to escape. The pump is driven by an independent shaft that does nothing else.

Another innovation of merit about the motor that is apt to escape any but the trained and observant eye is the employment of an aluminum encasing standard for the commutator shaft. The latter is vertical in conformity with what has come to be almost standard practice and is located on the right hand or intake side of the motor between the twin cylinder castings. It is driven by bevel gearing from the inlet cam shaft and is held rigid by two substantial sized bearings top and bottom, in addition which the entire shaft from the point where it leaves the crank case up to the lower side of the commutator shield is enclosed in a heavy standard of aluminum. This effectually prevents any loss of alignment through the setting up of torsional strains on the shaft, the latter resulting in uneven wear of the commutator itself and irregularity of the ignition.

The first of the 1907 models to be turned out are being equipped with the Schebler carburetter of the water jacketed type to insure easy starting in cold weather, but the makers expect to have a carburetter of their own design perfected very shortly and with which the cars will be equipped in future. Lubrication is by means of a mechanical force feed oiler of the Kinwood type, the tank being placed on the forward face of the dash under the bonnet which not only makes it readily accessible, but also permits of a convenient drive. Independent leads are taken to all the principal bearings in addition to which the splash system is relied upon.

A universal joint is placed between the clutch and the transmission and the necessity of a governor to prevent the motor racing when suddenly relieved of the load is done away with by interconnecting the clutch with the throttle. This takes the form of a trip which is engaged by the clutch pedal the moment the former is fully out of engagement. It may be set to slow the motor down to any speed desired and relieves the driver of the necessity of manipulating the throttle lever on the wheel when it is desirable to come to a sudden stop. The transmission is of the selective type giving three speeds ahead and reverse and is extremely compact. Contrary to general practice, the shifting lever is placed inside the body in such a position as to not only be very convenient to the driver's hand, but also averts any possibility of confusing it with the emergency brake lever as is the case where the two are in close proximity to one another. This always has been a feature of the Stoddard-Dayton.

A second universal joint is placed in the propeller shaft which drives the floating rear axle through bevel pinions, the purchaser being given an option of three different gear ratios on the latter, in accordance with the demands of the locality in which the car is to be used. The decided increase in the apparent size of the car is mainly to be accounted for by the larger wheels, which are 34 by 4 inches in place of the 32 by 3½, formerly employed and lengthening of the wheel base to 106 inches. This, also, has also provided room for expansion in the size of the body. With the exception of the motor itself, Timken roller bearings are used throughout on wheels, axles and transmission. The car weighs about 2,500 pounds and, fully equipped, sells for $2,500.

The Stoddard-Dayton line for 1907 is also to include a six-cylinder touring car and a high-powered runabout. The engine dimensions of the former are to be the same as those of the four-cylinder model just described and the power rating will probably be 50 to 60 horsepower. Hess-Bright ball bearings will be used on every bearing including those of the motor. The wheel base will be about 120 inches and the car will seat seven. It will list at $5,000. The runabout will be of the four-cylinder type now current, but instead of merely being the touring car minus its tonneau it will be a specially designed machine throughout. The motor cylinders will measure 3¼ by 3¼ inches and they will develop in the neighborhood of 25-30 horsepower at normal speed. It will list at $1,500.

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MODIFIED SLIDING GEAR

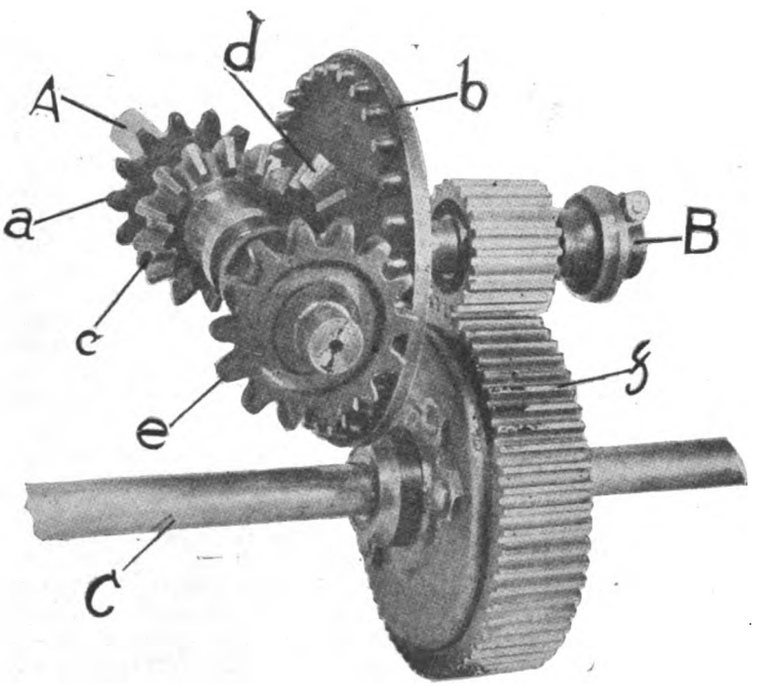
Hassler Transmission a Good Type—How it Simplifies and Facilitates.

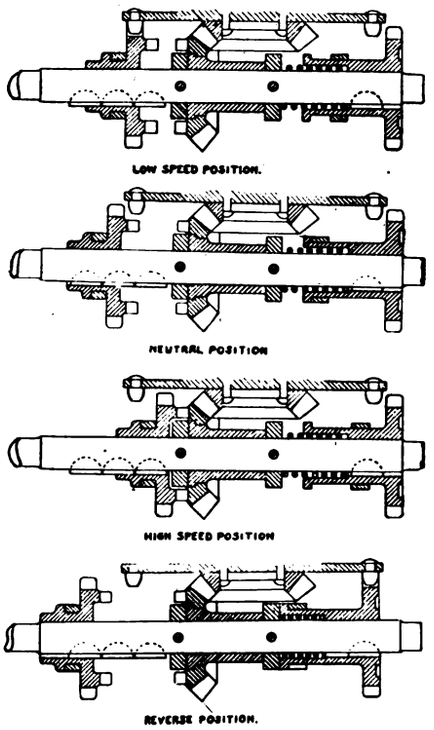
It is safe to say that the automobile designers at the present time are intent upon no one idea more universally than that of reducing the frictional losses of the transmission gearing, and at the same time facilitating the changing of speed from one step to another without the requirement of unusual skill, or an extraordinary amount of mechanism. In this, while the bulk of the industry is devoting itself to the further perfecting of the common method of sliding gear transmission, not a few competent builders are working along different lines, some of them modifications of the sliding gear principle, and others in more radical directions. Of the former group, has recently been evolved the Hassler Transmission, which is now being placed upon the market by the Marion Motor Car Company, Indianapolis, Ind., which, is most distinctive in its combination of movements, and in the ultimate simplicity of the device when taken as a whole.

In fine, it consists of a combination of pin and bevel gearing, with a spur drive to the live axle, giving only two changes of speed in the forward motion, yet so reducing the friction of the transmission that no intermediate step is found to be necessary under the most rigorous classes of service. Another feature of the Hassler gear, which is noteworthy, is that its arrangement permits of the use of a propeller shaft which normally is in direct line with the engine shaft, thus reducing the frictional losses commonly developed in shafts which are set at an angle, to only such as are produced under stress of rough roads. Also, the system involves an arrangement permitting of an ample clearance between the axle and the ground, since the transmission gears lie above the axle, the ground clearance being measured from the bottom of the differential casing only.

The assembly, which is shown in the accompanying cut illustrates how the power is taken from the motor through the propeller shaft A, to the counter shaft B, and so to the axle, through the differential housing. Mounted upon the inner end of the counter shaft, is a flat disc, b, carrying a bevel gear d, mounted on its face, while near the periphery and on the same face is mounted a circle of pins of proper tooth contour. Gears a and e, are mounted to turn with the propeller shaft, but are free to slide upon it, thus enabling the operator to bring either into mesh with the pin gear at will, the meshing of a, giving the low speed forward, while e, being put into mesh, transmits its motion to the opposite side of the driven disc b, and therefore secures the reverse. The bevel pinion c, on the other hand, is free to ride upon the propeller shaft at all times, and being constantly in mesh with the pinion d, on the driven disc, assumes a speed greater than that of the propeller shaft when the low and reverse are in mesh, which, however, cannot count as a disadvantage, since at such times it is perfectly idle. When the gear a, is slid toward the centre of the disc, a jaw clutch upon its face engages its mate on the pinion, thereby securing a connection with the driving shaft, and giving the high speed ratio corresponding with the direct drive on the ordinary type of transmission.

The drive from the countershaft to the axle is through a broad faced pinion set, the follower of which f, forms the outer portion of the differential housing. By this means, the changes of motion from the engine to the rear wheels are reduced to two for both forward and reverse positions, thus materially reducing the frictional loss in the transmission, and allowing the use of a higher ratio of transmission for the latter speeds, than otherwise could be applied with economy and without risk of overtaxing the engine under severe conditions. As a matter of fact, the highest reduction regularly furnished, gives a combination of 3.5 to 1 on the high, 7.25 to 1 on the low and reverse. The low and reverse gears are of 4-pitch, while the bevel and spur combinations are of 6-pitch in each case. All parts are made of specially treated metals, hardened to the correct degree.





How He Prevents Gear Clashing.

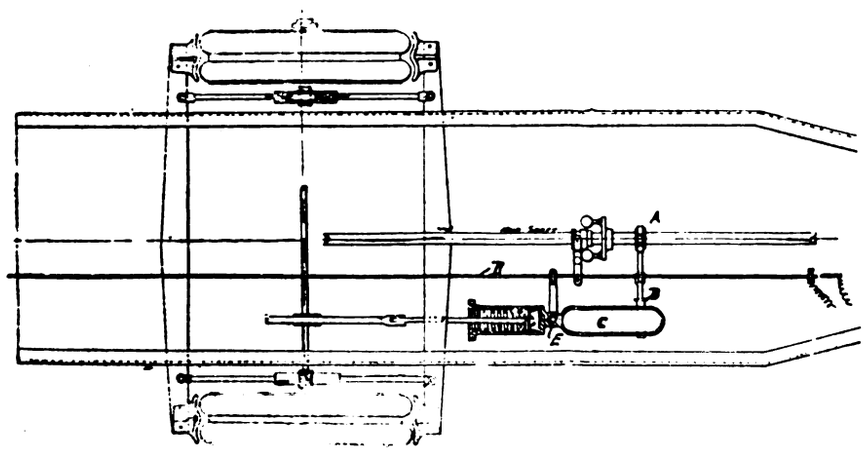
Some foreign genius who probably has never been able to learn to change gears without making a clatter, has recently developed a scheme for simplifying that process at the expense of considerable added mechanism and at least one extra pedal or lever. In a word, he has arranged to drive the jack shaft of an otherwise ordinary type of change speed gear, through a differential system, the floating member of which is controlled by a friction brake, operated by the driver when changing from one speed to another. By applying the brake in greater or less degree, the speed of the shaft is varied until the peripheral speeds of the gears which are to be brought into mesh are the same.

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SELF-ACTING BRAKES AGAIN

Disaster in England Stimulates New Development for Heavy Types.

Although there has been at one time or another, considerable agitation in favor of automatically governed brakes to be applied whenever the speed of the car attained a certain maximum, it is hardly likely that such suggestions were ever taken more than half seriously at the time, and it was not supposed that such devices ever would come to be considered as really essential to a complete equipment. Nevertheless, the recent destruction of a heavy 'buss in England, which was accompanied by a considerable loss of life, has given the raison d'étre to a company which has just developed a system of this nature for application to heavy vehicles of the commercial type.



AUTOMATIC BRAKE FOR HEAVY VEHICLES

Briefly, it is described as being a self-acting safety brake, and it is being marketed by Messrs. Ellis & Taylor, Southend-on-Sea. It comprises a pneumatic system of somewhat conventional aspects, with brakes under manual and governor control which are applied to the peripheries of the rear wheels, in a fashion which is distinctly offensive to the automobile engineer.

As will be seen from the accompanying diagram, the air-pump B, which is mounted directly on the compression tank C, takes its motion from the cardan shaft A nearby. It is in continuous operation, the pressure in the tank being relieved through a safety valve. Controlled by a valve, after the fashion of the familiar "straight air," is a port leading into the brake cylinder, in which is a plunger held in the "off" position by means of a spiral spring. This is connected through its rod and suitable linkage, to a transverse shaft lying above the axle, and arranged to clamp the brake beams, of which there are two, against the wheels when it is partially rotated.

Mounted on the cardan shaft, near the compressor, is a small fly-ball governor, which is arranged to actuate the valve rod D, which controls the brake valve, at the same time running the length of the chassis, and thus being suitable for control by the operator, or for use as an "emergency" within the body of the vehicle. The governor is so arranged, of course, that it can be set to apply the brakes at any given rate of speed, and is quite independent of the hand control.

Storm of Protest Against Motor 'Busses.

"Property owners complain of the dust, cracked plaster and reduced rentals. Tenants along the route of travel protest against a sleep-destroying racket and danger to pedestrians. Scientists are insistent that the already over-impregnated air of the city is poisoned still more and to an alarming extent by foul vapors from imperfect naptha and petroleum combustion. Notwithstanding the uproar created by the dissatisfied, the supply is not equal to the demand for swift going vehicles. It is almost impossible to get a seat on any motor bus, except at points of prominence, where vacant seats are filled at once," writes Consul-General Robert J. Wynne, from London.

"Inventors or manufacturers of motor busses and tires in the United States who can overcome the faults complained of will find a ready market for the right kind of a public machine. Already American machines for private owners are coming more into general adoption. Orders ahead for certain makes of American cars cannot be supplied, so great is the demand, where heretofore European makers have been considered unapproachable.

"The main points from which improvement may be hoped are (1) pnematic tires, which will stop the house-shaking vibration, put an end to the clashing and clanking of metallic parts, and by saving these from harsh vibration, prolong their life and keep them noiseless; (2) mechanical improvements which will end the smoke nuisance and render the omnibus more reliable, safe and inoffensive."

KEEPING TABS ON THE COST

An Expense Sheet will Show Condition of Car as Well as Outlay.

An expense sheet as a continuous indicator of the condition of a car, may not seem to be at all effective, yet when thoroughly considered, it appears after all to be a fairly accurate method of checking up the performance from day to day. Comparatively few motorists. it may be, take the trouble to figure out the running costs of their cars in terms of so much per mile of travel, yet all or nearly all have the factors at hand, if only they care to do so. Says an exchange in this connection:

"The expense entailed for gasolene is so small a factor in the total cost of running a car that, as a rule, motorists do not keep a very close record of the rate at which it is consumed in regular use. Nevertheless fuel consumption furnishes a valuable indication of the condition of a car, for it will show the number of miles one can run on a gallon, and whether the vehicle is performing as well as usual. Sudden changes of condition in the car, evident losses of power, manifested in decreased speed and hill climbing power, are readily noticed as they occur and may usually be traced to their sources by characteristic symptoms. On the other hand, the gradual deterioration in the condition of a motor-vehicle which comes about through extensive use may be hardly noticeable from day to day, but may amount to a very material difference in the quality of its running during a period of several months. The loss of power may have been so gradual during the period that the increased consumption from day to day has been imperceptible, but, in point of fact, the additional amount of fuel required may be very considerable. Very often a motorist is quite impressed with the speed and power of his new car, but after a little while he becomes used to it, its capabilities seem more ordinary to him, and he often thinks it is not doing as good work as it originally did.

"If, however, he knows exactly what was his mileage and fuel consumption during a certain trip at the beginning of the season he has a measure of the car's performance with which he can at any time compare its later condition, if he drives the vehicle over the same route under as nearly as possible the same conditions. If the later test shows a greater consumption he may be sure that the car is in some way not so well 'tuned up' as it was at the time of the first run."

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50 cents. The Motor World Publishing Co., 154 Nassau Street, New York.

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The Week's Patents.

829,140. Clutch. Walter J. Cochran, Southboro, Mass. Filed Sept, 16, 1905. Serial No. 278,703.

Claim.—1. In a clutch, the combination of a pair of relatively movable clutch members one of which is provided with inclined bearings, and means to engage said clutch members comprising a movable wedge, levers bearing at one end on said wedge tangentially, and at the other end upon said inclined bearings, and means to move the wedge.

829,166. Lubricator. Charles W. Manzel, Buffalo, N. Y. Filed Nov. 1, 1905. Serial No. 285,408.

Claim.—1. The combination of an oil-reservoir, a pump supplied therefrom, a spring-pressed check-valve arranged in the delivery-passage of the pump, a sight-chamber arranged above the level of the pump, a conduit leading from the portion of said delivery-passage on the inner side of said valve to the sight-chamber, the spring of said check-valve having sufficient resistance to support the column of oil in said conduit, and a cut-off valve arranged in said conduit, substantially as set forth.

829,171. Mechanical Lubricator. William Q. Pfahler, Leipsic, Ohio. Filed Aur. 16, 1906. Serial No. 312,018.

Claim.—1. The combination of a base-plate, a top plate, a cylinder arranged between them with its ends in engagement therewith, members extending from one plate to the other and connected therewith for securing the cylinder between the plates, a frame supported on the top plate and secured in place by the said members, a plunger in the cylinder, and means mounted on the frame for actuating the plunger.

829,182. Spring-Wheel. Samuel L. Taylor, Springfield, Mass. Filed Jan. 10, 1906. Serial No. 295,385.

Claim.—A wheel comprising an inner rim and an outer rim in separated relations and having within their proximate faces dovetail recesses and bowed springs having radially outwardly extended dovetail members at their extremities engaged in said recesses and said bowed springs having radially inwardly extended studs at their extremities, and spiral springs arranged with their axes radial to the wheel and in compression between the opposite portions of said bowed springs and having their ends surrounding and in engagement with said studs of the bowed springs.

829,205. Vehicle-Jack. William H. Hampson, Cambridge, Mass. Filed May 23, 1906. Serial No. 318,346.

Claim.—1. A vehicle-jack comprising a standard adapted to support a vehicle, a foot pivoted to said standard having a convexly-curved bottom surface forming a continuation of the bottom surface of said standard, and means to adjust said foot to different angles relatively to said standard.

829,223. Roller-Bushing. Clarence E. McIntire. Belfast, Me. Filed Oct. 28, 1905. Serial No. 284,838.

Claim.—A roller-bushing of the character described comprising a casing, purchase-rolls in contact with the inner surface of the casing, back rolls alternating with the purchase-rolls, and means independent of the purchase-rolls for limiting the inward movement of the back rolls toward the center of the bushing, said means comprising annular grooves formed in the sides of the casing, and end portions of the back rolls extending into said grooves, said casing having an axial shaft-opening and the purchase-rolls being of a diameter to contact with a shaft in said case-opening.

829,231. Rotary Motor. Alexander Primat, Paris, France. Filed Nov. 17, 1904. Serial No. 233,110.

Claim.—1. In an engine, the combination of a curved cylinder, a piston operating therein, a rocking member to which the piston is connected, a crank-shaft located at one side of said rocking member, a connection between the rocking member and crank shaft, a valve at each side of the said cylinder, means for operating said valves, such means including a cam-shaft for each valve, the cam-shafts extending across the crank-shaft, and gearing for driving the cam-shafts from the crank-shaft.

829,242. Variable-Speed Mechanism. John F. Warner, Muncie, Ind. Filed Apr. 7, 1905. Serial No. 254,282.

Claim.—1. In a variable-speed mechanism, the combination with a casing, of a driving and a driven avel in avial alinement, a driv- and a driven axel in axial alinement, a driv-on and rotating with said axles, coupling-gears mounted in said casing, said coupling-gears adapted to slide longitudinally into and out of mesh with said driven gear, said coupling-gears adapted to engage each other.

829,333. Vehicle-Jack. William H. Hampson, Cambridge, Mass. Filed Dec. 2, 1905. Serial No. 289,950.

Claim.—1. A vehicle-jack comprising a standard adapted to support a vehicle and having a convexly-curved bottom surface, a portion of which surface is flattened, whereby said jack may be rocked, together with said vehicle, said jack being weighted at one side of its median vertical plane, whereby the same stands normally in position to receive the axle of said vehicle when the wheels thereof are in contact with the floor.

829,345. Carburetter. Albert W. Menns, Malden, Mass. Filed June 7, 1905. Serial No. 264,079.

Claim.—1. In a carburetter, the combination of a mixing-chamber, a hydrocarbon-reservoir, a hydrocarbon- inlet nozzle therefor communicating with said mixing-chamber, an air-inlet passage also communicating with said mixing-chamber, a valve, a cylinder thereof, and means for admitting and emitting liquid to and from said cylinder beneath said piston.

829,363. Nut-Lock. John V. Berry, Shamokin, Pa., assignor of one-half to Charles A. Barron, Shamokin, Pa. Filed Mar. 5, 1906. Serial No. 304,295.

Claim.—1. A nut-locking device comprising a loop and a handle portion or shank leading therefrom, the loop having converging wings connecting with the handle portion or shank, and having said wings deflected at their juncture with the handle portion in the direction of axis of the loop, whereby to form a spiral for screwing on the bolt, the locking device being alike on both sides and the shank or handle being adapted to be bent down alongside the nut for locking them, substantially as set forth.

829,375. Air-Carburetter. William E. Garvey, Cleveland, Ohio, assignor of one-third to Albert N. Butler and one-third to Wendall J. Engel, Cleveland, Ohio. Filed May 18, 1906. Serial No. 317,484.

Claim.—1. An air-carburetter, comprising a tank divided into an upper chamber for containing the charged air, a perforated plate forming a bottom-space, partitions whereby said space is formed into a plurality of longitudinal compartments of which said perforated plate forms a cover, air-inlet pipes opening at the tank-wall, each pipe extending down through said perforated plate into one of said compartments, closed at its inner end and having perforations the length of said compartment, a float-controlled feeding-valve connecting the liquid-supply and the air-charged chambers, and a suction-pipe connecting the air-charged chamber opposite the air-inlets.

829,402. Steering-Gear and Motor-Controlling Mechanism for Motor-Vehicles. Russell Huff, Detroit, Mich., assignor to Packard Motor Car Company, Detroit, Mich., a corporation of West Virginia. Filed Apr. 6, 1906. Serial No. 310,303.

Claim.—1. In a motor-vehicle, motor-controlling devices comprising a pair of parallel rods mounted in a suitable support and adapted to be reciprocated, laterally-extending shafts having geared connections with the upper ends of said rods, circular racks connected to the lower ends of said rods, pinions meshing with said circular racks, and connections from said pinions extending to the motor mechanism.

829,413. Transmission System for Automobiles. Jules Mélotte, Remicourt, Belgium. Filed Aug. 1, 1905. Serial No. 272,272.

Claim.—1. A transmission system for automobile, comprising a drivin~ pinion, a driving-wheel, a driven wheel and an intermediate pinion, the axles of said driving-pinion and driving-wheel being mounted on the chassis and adapted to move relative to the axles of the other pinion and wheel, and driving-wheel and the driven wheel being of substantially the same diameter.

829,435. Variable-Speed Gear. Christopher Schnöpper and Alfred A. R. Berger, New York, N. Y. Filed Sept. 18, 1905. Serial No. 278,835.

Claim.—1. A variable-speed gear in which is comprised a driving part provided with a gear or teeth; a shaft to be driven wherein the driving part is loosely mounted; a disk or frame fixed to the shaft to be driven; a bearing-box carried by the same frame or disk; a gear carried by said box, engaging the first-mentioned gear, and arranged to rotate at a right angle to the shaft to be driven, and means for varying the friction of the bearing-box.

829,461. Vehicle-Wheel and Pneumatic Tire Therefor. Ephraim Chaquette, New Rochelle, N. Y. Filed Sept. 11, 1905. Serial No. 277,872.

Claim.—1. In a vehicle-wheel, a bipart rim therefor composed of two, vertical, removable ring-plates having inset flanges, one of said plates having a corrugated base-flange, and bolts uniting said plates to the wheel.

829,496. Protecting-Cover for Vehicle-Tires, Roughsedge Wallwork, Manchester, England. Filed Dec. 12, 1905. Serial No. 291,411.

Claim.—In tire-covers, cover-sections, connected together by staples and having attachments for connection to the wheel, a periphery-band on said sections, externally-clenched staples, solely attaching said

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band to said sections, metal wearing-plates, attached to said band independently of the cover, projections on said plates, clenched on under side of said band, substantially as set forth.

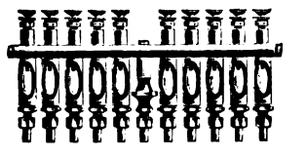
829,498. Hood for Automobiles. Christopher Wright, Chicago, Ill. Filed Oct. 23, 1905. Serial No. 283,985.

Claim.—1. In a hood for automobiles a top or roof formed in two longitudinal sections being provided with a flange or extension which overlaps or breaks the hinge-joint substantially as described.

829,525. Clutch. Warren S. Hill, Hyde Park, Mass., assignor to Clifford D. Prickett, Hazardville, Conn. Filed June 27, 1904. Serial No. 214,234.

Claim.—1. In a clutch, the combination of a revoluble outer member having an internal working face, a revoluble shaft, an inner member secured thereto and levers pivoted to said member and provided with shoes having frictional faces eccentric to said internal working face when coöperating therewith, the front or operating edge of each shoe being always at that side of a line passing through the axis of the clutch and the lever-pivot from which the outer member is moving.

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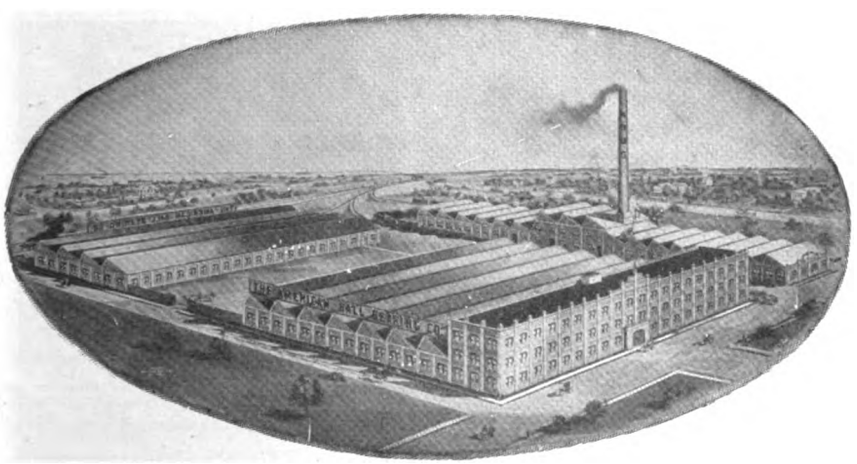
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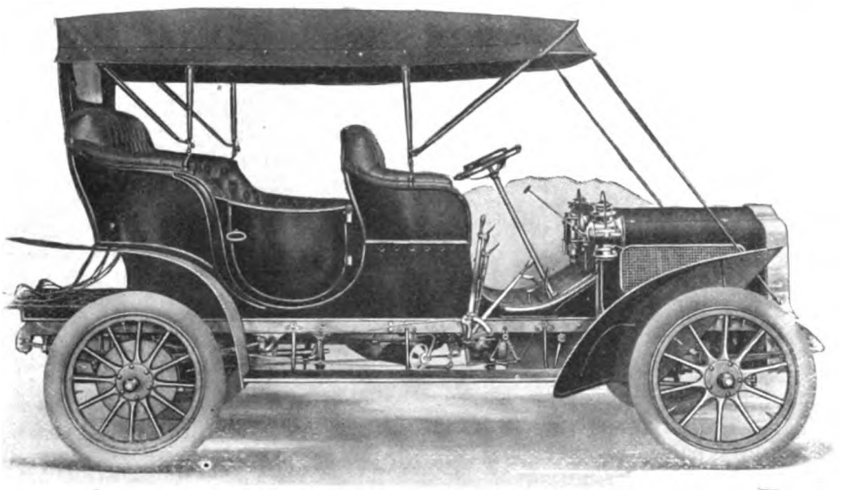
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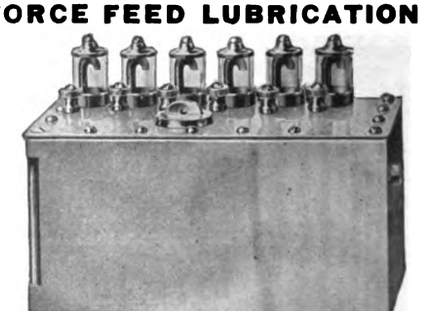
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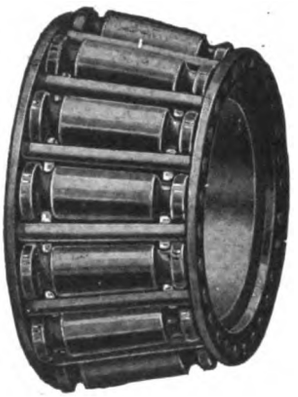
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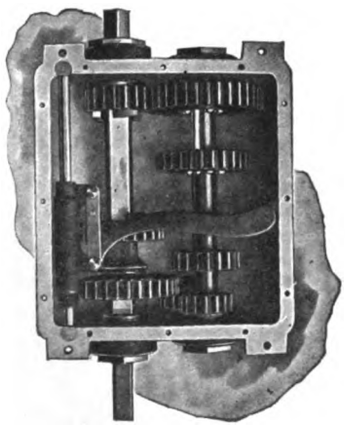
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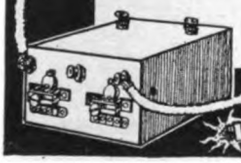


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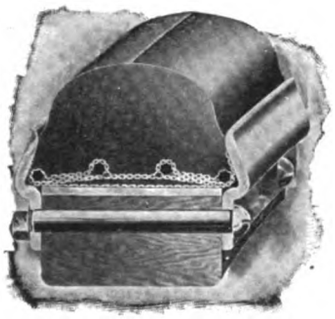
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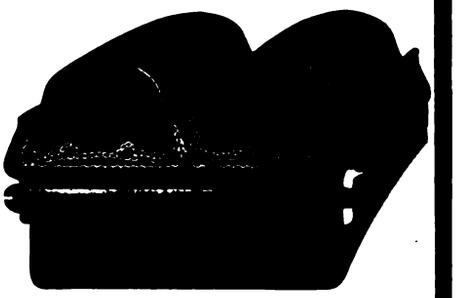


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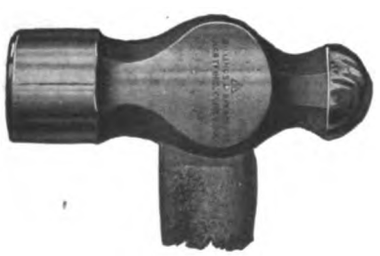
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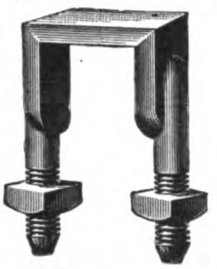
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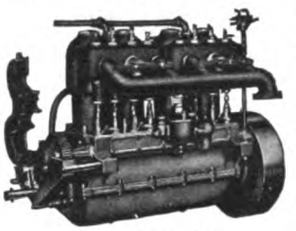
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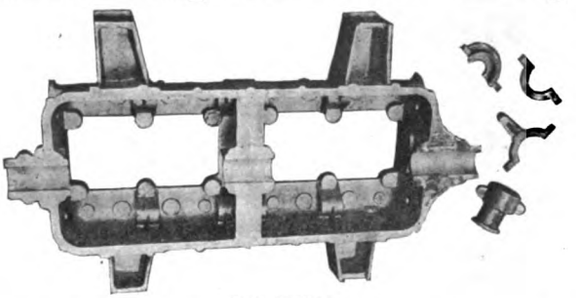
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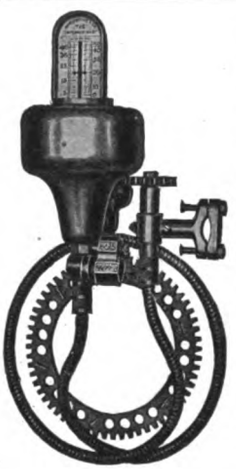
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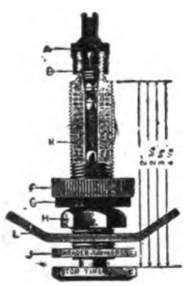
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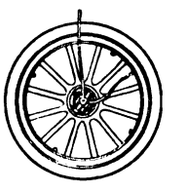
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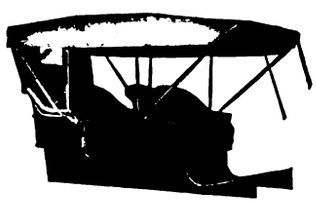


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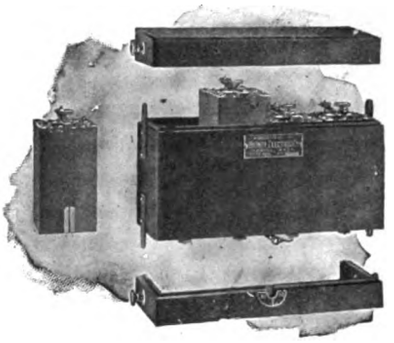
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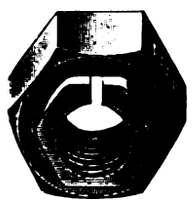
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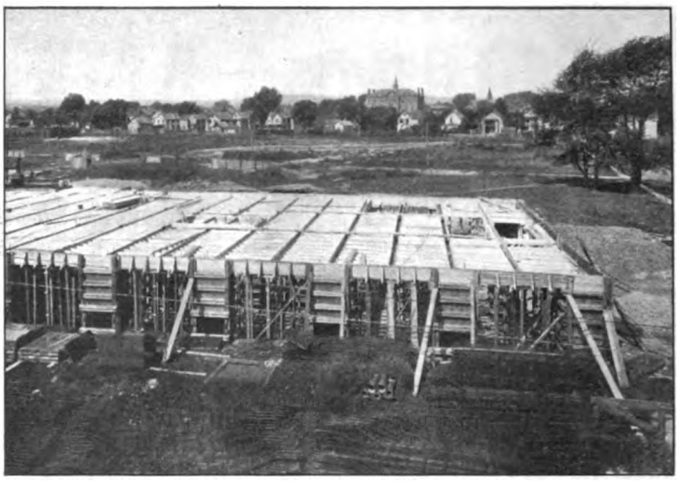
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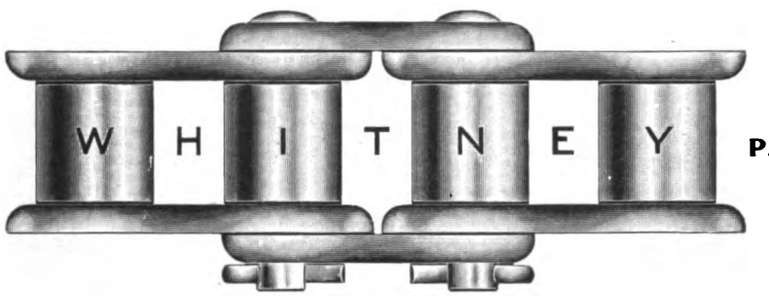


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The property is located near the Electric Vehicle Co. and Hartford Rubber Works on the main railroad and a side track runs through the center reaching the end of building number 1.

"Whitney" 1907 Chains will be better than ever. In our new plant "we will leave no stone unturned" to reach perfection in chain quality.

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"Whitney" standards for dimensions of Roller Chains have been adopted by nearly all American Motor Car Manufacturers, and they are now being made by competitors at home and abroad.



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WANTED—We are anxious to secure the names and addresses of motorists who are not annoyed by wholly unnecessary tire troubles, or who can be exasperatingly inconvenienced and still have a jolly good time. We frequently send literature concerning

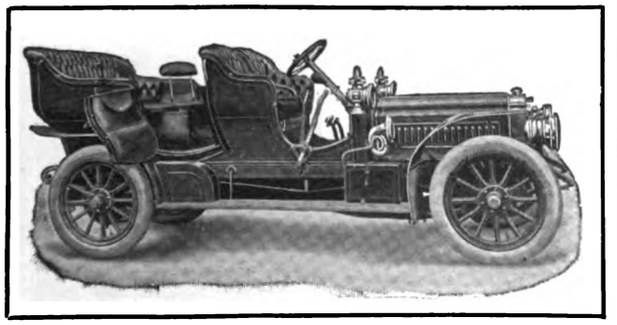
MORGAN & WRIGHT TIRES

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in all parts of the country, in all kinds of roads, with all kinds of drivers—that's what has put the Thomas in the fore front of the chosen few really great automobiles of the world.

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The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J Patents:

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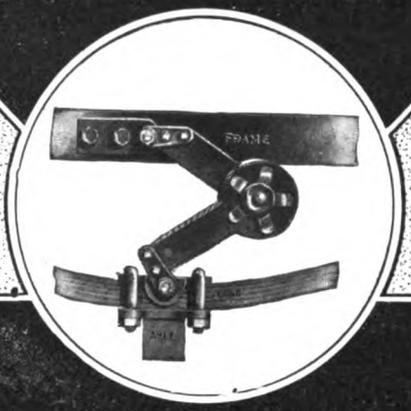
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TRADE MARK
THE PIONEER AND THE BEST
YOUR car needs it

Increases speed
Prevents breaking of springs
Doubles life of tires
Insures comfortable riding



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Yours truly,
KNOX AUTOMOBILE CO.
C. H. Martin.

NO REPLACEMENTS NO LAYING-UP OF TRUCKS NO DELAYS

"Firestone" Tires Are Not the "Paper Talk" Kind

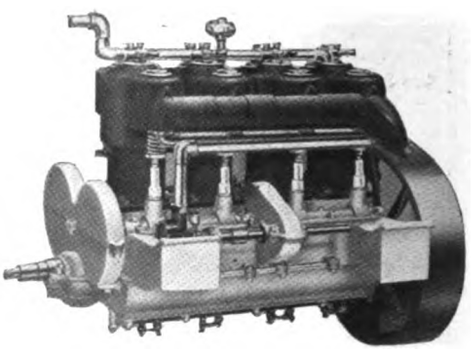
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The "HAYNES" engine, built in our own factory, harmonizes perfectly with all other parts of the car.

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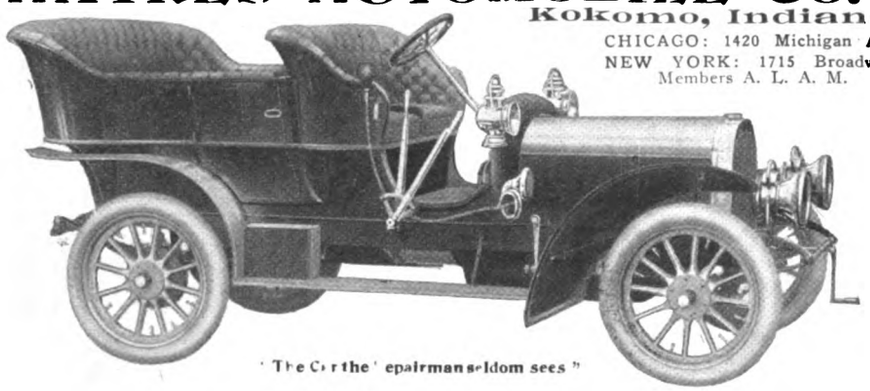
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Members A. L. A. M.



"The Car the Repairman seldom sees"

Model "R" Four-Cylinder Touring Car.

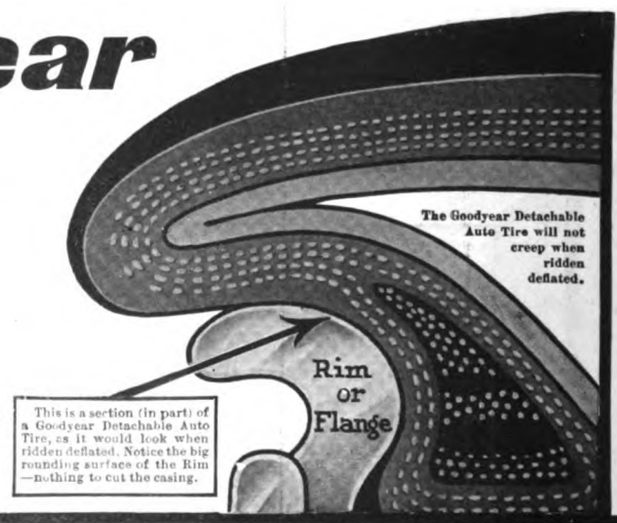
Vertical roller-bearing engines. Cylinders cast separately, 5¼x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,500 f. o. b. Kokomo. Full equipment.

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Cylinders cast in pairs 4¼x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.

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DETACHABLE
AUTO-TIRE
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Universal Rim

can be ridden deflated for miles over country roads or rough pavements without material injury, for it



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The illustration plainly shows why. Call at any of the following stores and learn the dozens of other trouble and time-saving features

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Two New Models—Both Winners

MODEL M

40 H. P. four-cylinder motor.
Carries seven passengers.
Four forward speeds, selective type.
Direct drive on **third** speed.
Multiple disc clutch.
Off-set cylinders—more power; no "knock" in cylinders.
Immediate accessibility of all working parts.
Interchangeable, mechanically operated valves, all on one side.
One cam shaft for all valves.
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Horizontal drive shaft.
Mechanically throttled carburetor.
"Shooting" oiler, mechanically operated.
Improved Winton Twin springs.
Four brakes, all on rear hubs.
Ground bearing surfaces.
Ball and roller bearings, properly distributed.
Floating type rear axle.
Tough I-beam Parson's manganese bronze front axle.
Jump spark ignition.
Centrifugal pump cooling.
Tested materials.
Wheel base, 112 inches.
Gas, oil and tail lamps, trunk carrier, tools, horn, etc.
Price, $3,500, f. o. b. Cleveland.

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30 H. P. four-cylinder motor.
Carries five passengers.
This car succeeds the wonderfully successful Winton Model K and is both faster and a greater hill-climber.
Winton patented air control.
Individual clutch transmission.
Off-set cylinders—conserve power; eliminate the "knock."
Immediate accessibility of all working parts.
Valves all on one side of motor.
Only one cam shaft.
Off-set cam shaft—less power required.
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Improved Winton Twin springs.
Four brakes, all on rear hubs.
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Ground bearing surfaces.
Ball bearings in all wheels.
Heavy I-beam front axle.
Jump spark ignition.
Centrifugal pump cooling.
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Wheel base, 104 inches.
Gas, oil and tail lamps, trunk carrier, tools, horn, etc.
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Descriptive advance circulars, covering each new model, are now ready. In writing please state whether you desire both circulars or only one. Circular No. 7 covers Model M. Circular No. 8 covers Type XIV.

THE WINTON MOTOR CARRIAGE COMPANY

CLEVELAND, OHIO

Member Association of Licensed Automobile Manufacturers.

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THE MARMON

"A Mechanical Masterpiece"



Perfect Score—Glidden Tour.

FOREIGN THEORY
vs.
AMERICAN FACT

"Copied from the foreign cars!"

That's the slogan of too many American manufacturers.

The theory is that anything to be built right must be built abroad. American mechanical genius is not to be trusted.

One of the things most generally copied is water-cooling. All that cumbersome mass of plumbing with its complications and extra weight is copied from the foreigner.

So much for theory!

Note These Facts

In the 1,200 miles of hard going over American roads in the Glidden Tour, not one foreign car had anything like a clean score. The Marmon finished with a clean score, without repairs or replacements.

In the Glidden Tour, when nearly every checking station showed a line of water-coolers boiling over, the Marmon air-cooled car came through without overheating, consuming less than 5 gallons of oil for the whole car on the trip.

Theory is delightful, and facts are rude. But the choice is simple.

1907 AGENCIES

For the Marmon are going to be gilt-edged propositions. Drop us a line now!

Nordyke & Marmon Co.

(Established 1851) **Indianapolis, Ind.**

Members American Motor Car Manufacturers' Association.



PREEMINENTLY THE CAR FOR ALL-YEAR-ROUND SERVICE

POPE-WAVERLEY ELECTRICS occupy a unique position in the motor world. The most ardent advocate of contrasting types does not question the preeminence of the **ELECTRIC** as a general utility car for all-year-round service.

The operation of **POPE-WAVERLEYS** is so simple that they are available for the use of the whole family day and night and at any season of the year.

Removable Top Coupe Like Illustration **$1600**

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POPE AUTOMOBILES

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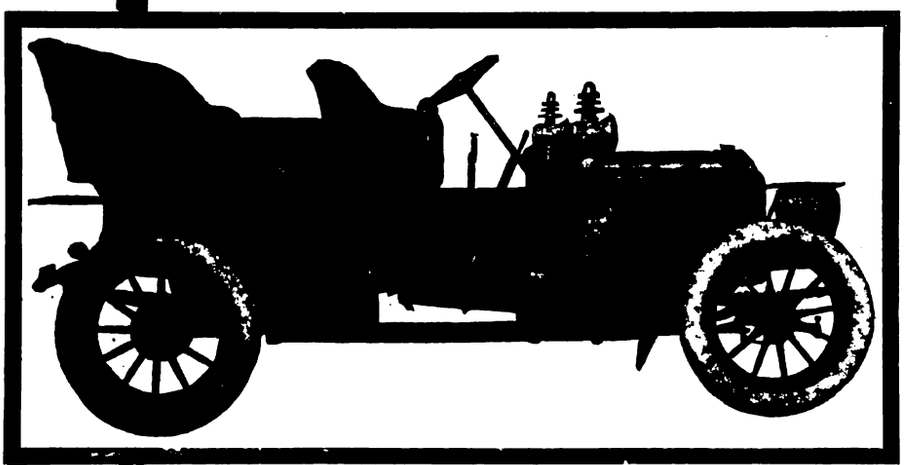
The dealer who sells an automobile that isn't as good as it ought to be, is doing more to injure the business in general than the sale of two honestly built cars can overcome.

The dealer who sells a

Single Cylinder CADILLAC,

sells a car which inspires confidence and makes of the purchaser an enthusiastic advocate of the motor car as a practical, dependable and economical vehicle.

CADILLAC MOTOR CAR CO.
Detroit, Mich.
Member Assn. Licensed Auto. Mfrs.



Why Life Is Pleasant For The Elmore Agent

When all is said and done the difference between our four-cycle car and another is a difference of degree and detail.

The agent is hard pushed for talking points.

There is just one principle in automobile construction to-day, which represents a departure from beaten paths.

That is the two-cycle engine, and both the principle and the application are amazingly easy to demonstrate.

The principle of continuous power is one that converts and convinces everyone—its exemplification in the Elmore car is absolutely final and conclusive.

Literally all that the agent has to do is to explain the engine and then demonstrate the car.

A comparison of two-cycle and four-cycle almost inevitably means—an Elmore sale.

Is it surprising the two-cycle idea has grown faster than the factory could keep pace with it?

Is it surprising we've had to build a new factory?

Is it surprising that Elmore Agencies are so sought after?

THE ELMORE MFG. CO.
1104 Amanda St. CLYDE, OHIO
Members A. L. A. M.

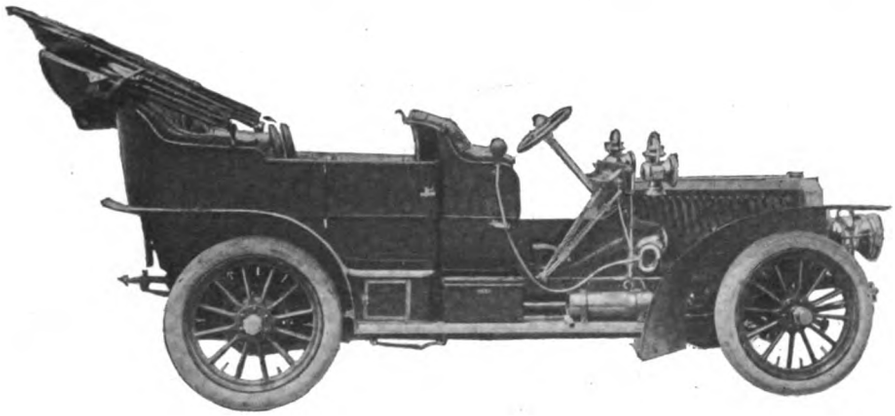
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Matheson Touring Cars

IMMEDIATE DELIVERIES

The value of this high-grade American product depends SOLELY upon its quality and workmanship. The latest practical improvements embodied in its construction gives THE MATHESON a superiority which is widely recognized.

40-45 H. P. $6,000



60-65 H. P. $7,500

LEADING FEATURES

Motor—All valves on top which never need re-grinding. Chrome-nickel steel in transmission gears and shafts.
Ignition—Make-and-Break, with magneto, which eliminates the use of spark plugs and vibrating coils.
Speed—60 miles an hour guaranteed. EVERY CAR IS FULLY EQUIPPED

SEND FOR ILLUSTRATED CATALOGUE

THE MATHESON COMPANY OF NEW YORK, 1619 Broadway, New York

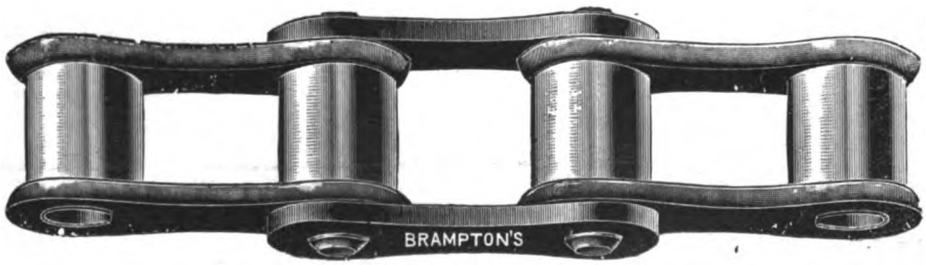
Philadelphia Branch—The Bellevue-Stratford Garage.

LICENSED UNDER SELDEN PATENT

Mr. Manufacturer, Jobber, Dealer and Owner

There is a reduction in chain prices for 1907. Get our new prices on the strongest chain in the world; the Brampton chain, manufactured by Brampton Bros., established since 1852. Also new prices on horns, tire irons, lamp brackets, jacks, etc. Let us figure with you.

THE BRAMPTON



Which is made of self-hardening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

The matter of repairs and replacements is simple.

YOUR CHOICE.

The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars.

CHAS. E. MILLER, MANUFACTURER, JOBBER, EXPORTER AND IMPORTER,
HOME OFFICE: 97-99-101 READE ST., NEW YORK CITY.

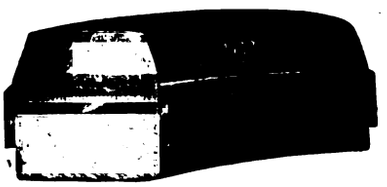
BRANCHES: New York City—924 Eighth Ave.
Philadelphia, Pa.—318-320 N. Broad St. Boston, Mass.—202-204 Columbus Ave.
Cleveland, O.—406 Erie St. Detroit, Mich.—227½ & 229 Jefferson Ave. Buffalo—824 Main St.

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"ON RAILS OF RUBBER"

That's where the Motor Truck must run to be a success.

Diamond
Wire Mesh Base Tires



for Motor Trucks and Commercial Cars, are the only practical Rubber Rails.

The weaknessess of ordinary truck tires have been avoided in Diamond Wire Mesh Base Construction.

Note the cut. See the low, broad tread, giving enormous traction (the right ground grip) and avoiding leverage for side strains.

Simple—Economical—Scientific, and made of high grade rubber. *Let us send you a catalogue.*

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

NEW YORK—78 Reade St.
NEW YORK—1717 Broadway.
BOSTON—174 Columbus Ave.
PHILADELPHIA—304-306 N. Broad St.
BUFFALO—715 Main St.
DETROIT—258 Jefferson Ave.
ST. LOUIS—3966 Olive St
CHICAGO—1523-31 Michigan Ave.
CLEVELAND—1514 Euclid Ave.
OAKLAND—108-110-112 Telegraph Ave.
MINNEAPOLIS—503 Second Ave., S.
DENVER—1735 Arapahoe St.

The "Maxwell"

Perfectly Simple —— Simply Perfect

20 H.P. Touring Car $1450

10 H.P. Tourabout $780

The Car That "Made Good"

Did it so quickly and so convincingly that it has taken the Automobile public fairly by storm In the three years of its commercial life it has deservedly become one of the very few cars that everybody considers before buying.

In volume of sales in New York State alone during the last year Maxwell cars stand second. No more could be sold because no more could be made.

Isn't this a fairly good record for a comparatively "new car"?

Here are the features that have brought automobile contentment to Maxwell owners: Multiple Disc Clutch. Three-point Suspension of Motor and Transmission (Unit). Equipped with Ajax Tires, guaranteed 5,000 miles of riding. Metal Bodies. No Noise. No Vibration.

There is a book called "Facts and Testimony" that gives the "owner's side" of the automobile question. You get it when you send for our catalogue.

Write Department 2

Maxwell-Briscoe Motor Company

• *Member American Motor Car Manufacturers' Association, N. Y.* •

Main Plant: TARRYTOWN, N. Y.

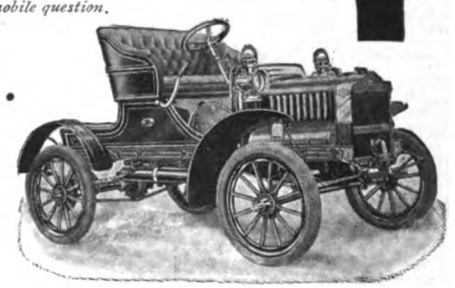
CHICAGO, ILL. PAWTUCKET, R. I.

BRANCHES:

Maxwell-Briscoe, Inc., New York, N. Y.
Maxwell-Briscoe-Chase Co., Chicago, Ill.
Fisher Automobile Co., Indianapolis, Ind.
Maxwell-Briscoe-Boston Co., Boston, Mass.
Maxwell-Briscoe-McLeod Co., Detroit, Mich.
Maxwell Garage, Brooklyn, N. Y.
J. W. Wilcox & Son, Los Angeles, Cal.
Richard Irvin & Co., New York City.



20 H. P. Touring Car, $1,450



10 H. P. Tourabout, $780

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LOZIER

1907 AGENCIES

¶ We are now closing Agency contracts for 1907 LOZIER MOTOR CARS, and there is still a chance for a few live agents in some of the larger cities.

¶ The retail demand in New York City and vicinity, for LOZIER MOTOR CARS is so large that only a limited number of cars can be furnished to agencies, and it is therefore advisable that those desiring to represent this high-grade product in their locality should communicate with us at once, as territory will be assigned to responsible first comers.

¶ The agencies which we will establish will have cars allotted to them, and assurance will be given that deliveries will be satisfactory, as the number of LOZIER agents will be limited.

¶ Deliveries will begin in October.

¶ 40 and 60 horsepower.

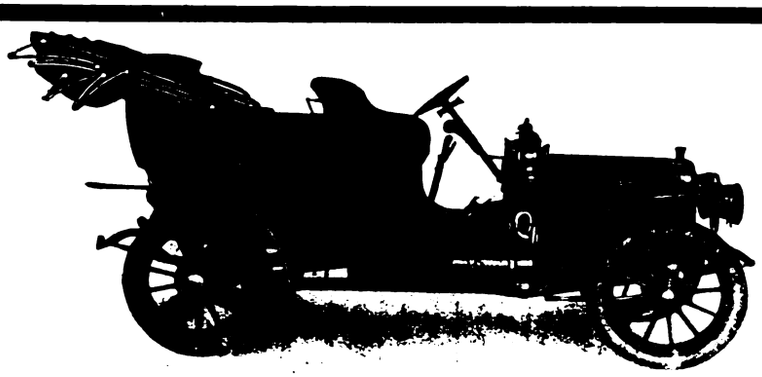
1907 AGENTS

Geyler & Levy, Chicago.
Myronda Motor Car Co., St. Louis.
Sid Black Auto Co., Cincinnati.
White & Castle, Springfield, Mass.

THE LOZIER MOTOR COMPANY

Member American Motor Car Manufacturers' Association.

55TH STREET AND BROADWAY, NEW YORK CITY



WHY?

WHY has the Stoddard-Dayton climbed to the top of the ladder in two years? WHY has it attained such widespread popularity and such a splendid reputation in so short a time?

In 1905, the first year the Stoddard-Dayton touring car appeared, it met with immediate and emphatic favor and our entire output was quickly snapped up by the motor-wise people. In 1906, the second year, our sales showed

Stoddard-Dayton

An Increase of More Than 400 per cent.

over the first season's production. Already orders on our books for 1907 are over 200 per cent. above our entire 1906 output. Compare these figures with some of the older makers.

WHY have these results been obtained? We will tell you—

FIRST: Because the car has genuine merit and has proven it in many a contest and on many a long tour.

SECOND: Because it is honestly made in our own factory and is sold at an honest price.

THIRD: Because it has beautiful lines, is extremely silent, is light in weight and yet very powerful.

Model F—a 5-passenger touring car, 30-35 H. P., equipped with our new Stoddard-Dayton motor, much more powerful than last year's engine; 4 cylinders (4⅝x5 inches); sliding gear transmission, selective type; 34-inch wheels.

Price $2500 with full lamp equipment. Better than cars costing more. Our 1907 Advance Booklet will interest YOU.

THE DAYTON MOTOR CAR CO., DAYTON, OHIO

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G & J
Oval Raised
Tread Tire

The Most Serviceable Tire in the World

BECAUSE

SCIENTIFICALLY MADE

Write for our booklet

"PROPER TIRE CONSTRUCTION"

Which contains valuable information for the user of motor tires.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

G & J TIRE CO.
Indianapolis.

Depots:

Chicago	Boston	Cleveland
Detroit	Buffalo	Denver

Philadelphia
San Francisco, 423-433 Golden Gate Avenue
New York, 10 West 60th Street

Distributing Agencies:

Minneapolis, Plant Bros.
Portland, Ore., Keats & Co.
Los Angeles
Ramsay-Hutchins Rubber Co.,

CORBIN

AIR-COOLED CARS FOR 1907 WILL BE WORTHY IN EVERY RESPECT

Backed by ample capital, over fifty years' knowledge of high-class manufacturing, the experience of a vast engineering corps and a policy which demands that everything be done right

FOR WISE BUYERS

Corbin Motor Vehicle Corporation

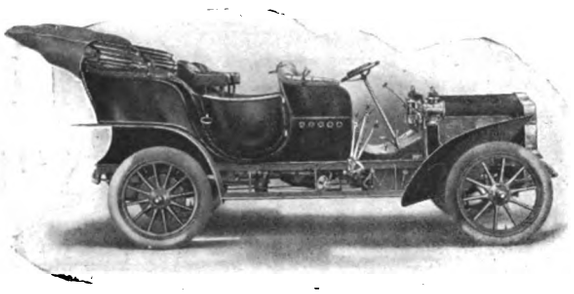
NEW BRITAIN, CONN.

N. Y. Branch, 1799 Broadway, New York.
E. T. Kimball Co., Motor Mart, Boston.
Bennett-Bird Co., 1470 Michigan Ave., Chicago.
J. W. Leavitt & Co.,
415 Golden Gate Ave., San Francisco.

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The Incomparable WHITE

The Car for Service



MORE HONORS FOR THE WHITE

In the arduous 115-mile Reliability Test of the Milan Automobile Club, held August 19th, over the celebrated St. Gothard Pass, a White made a perfect score and was awarded a gold medal.

In the Los Angeles Endurance run, June 29th-30th, three Whites made perfect scores. No other make which was represented by more than one car escaped penalization.

More significant still, as demonstrating not only the reliability but also the simplicity of operating the car, was the perfect score made by Mrs. F. B. Draper, driving her White Steamer, in the recent Chicago-Elgin-Aurora Endurance run.

Write for circular descriptive of our new models

WHITE SEWING MACHINE COMPANY
CLEVELAND, OHIO

Locomobile

Wins Endurance Run of the Albany, N. Y., Automobile Club

Joseph B. Taylor, driving his 30-35 H.P. "Locomobile," won the silver cup donated by Col. A. J. McClure. Over 540 miles through New England without a stop or adjustment.

Also W. L. L. Peltz, driving a 30-35 H.P. "Locomobile," secured honorable mention. 19 competing cars. Two of them "Locomobiles."

Send for "Locomobile" Catalogue.

The Locomobile Co. of America
BRIDGEPORT, CONN.

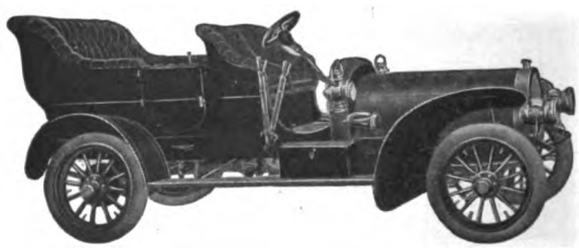
Members Association Licensed Automobile Manufacturers.

National

WORLD'S RECORDS FOR 1000 Miles and 1094 3/16 Miles in 24 Hours

Made Nov. 17th, 1905

STILL STANDS UNEQUALLED.



4 Cyl. 35-40 H. P. $3000. 6 Cyl. 50-60 H. P. $4000.

NATIONAL RELIABILITY AND ENDURANCE ARE HARD TO BEAT.

Write for Particulars.

WATCH FOR THE ROUND RADIATOR

National Motor Vehicle Co.
1007 E. 22d STREET,
Indianapolis, Ind.

WATCH FOR THE ROUND RADIATOR

• Member American Motor Car Manufacturers' Association, N. Y. •

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Two Punctures

Between San Francisco and New York



represents the sum total of tire troubles in the remarkable transcontinental record run of a Franklin car equipped with

GOODRICH TIRES

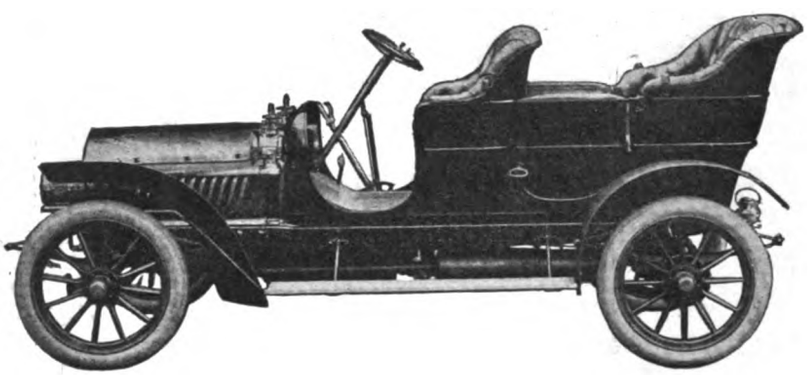
A new cross-country speed record (3,500 miles in 15 days) and another practical demonstration of Goodrich Tire superiority following close upon the Glidden Tour accomplishment where 66⅔% of the clean score cars were equipped with GOODRICH AUTOMOBILE TIRES.

THE B. F. GOODRICH COMPANY,
AKRON, OHIO

New York, 66-68 Reade St. & Broadway. Chicago, 24 E. Lake St.
Oakland, Fourth and Washington Sts. Boston, 161 Columbus Ave.
Philadelphia, 909 Arch St. Buffalo, 731 Main St.
Detroit, 266 Jefferson Ave. Denver, 1444 Curtis St.
Cleveland, 2188 Ninth St., S. E. St. Louis, 3926-28 Olive St.
London, E. C., 7 Snow Hill.

GOODRICH TIRES

NEW Premier MODELS



The added model of the 1907 Premier car is certainly and rapidly demonstrating its fitness as a road car of the staunch variety; recent hard runs—Indianapolis to Cleveland, Indianapolis to Boston, and Chicago to Indianapolis—without touching the mechanism of the car—all furnish the most indisputable evidence of its rigid, strong construction and excellent material.

On the hills it is as much at home as a chamois. **The Premier stock car has never lost a hill-climbing contest,** and has won many.

No car built has such superb carriage, nor it as comfortable to travel in.

It has an abundance of power and speed, is economical to operate and is handsome in appearance; excellent quality of upholstering, trimmings and accessories.

24 M. P., shaft drive, selective sliding gear.

Go to our nearest agent and look them over—try them; they have a way of convincing you that they are not only all that we claim, but more.

Cut of water-cooled car—side view.



Air Cooled

Premier Motor Mfg. Co. Indianapolis, Ind., U. S. A.

Members American Motor Car Manufacturers' Association.



Water Cooled

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Columbia

Automobiles

1907 GASOLENE ELECTRIC 1907

Will maintain the high standard of excellence attained in the past.

An improvement made in all models where experience has demonstrated its value tends to make the COLUMBIA better than ever before.

Electric Vehicle Company

HARTFORD, CONN.

NEW YORK BRANCH—134-136-138 West 39th St.
CHICAGO BRANCH—1332-1334 Michigan Ave.
BOSTON—Columbia Motor Vehicle Co., 74 Stanhope St.
WASHINGTON—Washington E. V. Transportation Co., 15th & Ohio Ave.
Members Association of Licensed Automobile Manufacturers.

SOLARS

SHOW THE WAY

The **Solar Parabolens Projector** will please the motorist who wants to see where he is going.

There is light and plenty of it that pierces the distant obstruction and at the same time lightens up the ground right in front of the car.

Our Bi-Concentric lens is what does the trick.

BADGER BRASS MFG. CO.

11th Ave., 36th to 37th Sts, New York City

KENOSHA, WIS.



THE winning of the speed indicator reliability contest in England was not a strenuous effort of any specially constructed instrument.

The Jones Speedometer

entered in this contest was selected from stock by the committee of judges. Any Jones Speedometer would have performed just as creditably as the Gold Medal instrument. There are more Jones Speedometers in use to-day than all other makes combined.

Judges Report in the Automobile Journal.

(The official organ of the Automobile Club of Great Britain and Ireland.)

After completing the 2000 mile road tests, the calibration of the speedometers was checked on a machine specially devised for that purpose, and the errors recorded; they were subsequently taken to pieces and carefully examined by the Judges for wear and defects, both of the indicating mechanism of the instruments and the transmission arrangements between the road wheel and the speedometer itself.

In making the award the following points were taken into consideration:

ACCURACY, DURABILITY, EFFECT OF REVERSING THE CAR ON THE SUBSEQUENT ACCURACY OF THE INSTRUMENT, PRICE, RAPIDITY OF RESPONSE TO VARIATIONS OF SPEED, SIMPLICITY OF CONSTRUCTION and ATTACHMENT and STEADINESS OF READING.

After taking into consideration all the points laid down in the regulations for consideration, the Judges have placed the entries in the following order of merit.



1. Jones
2. Elliott
3. Cowey Indicator
4. Gratze
5. Vulcan
6. Cowey Recorder
7. Warner Auto-Meter
8. Staunton

JONES SPEEDOMETER,
132 West 32d Street, New York
MFG. BY JOS. W. JONES

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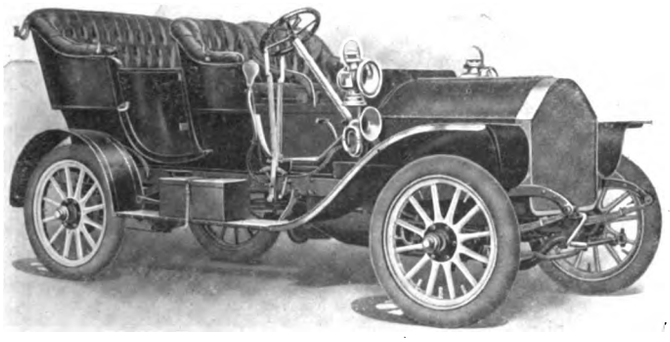
"The direct system of cooling shown by the Glidden Tour to be the most efficient in existence, direct or indirect."

Model "H"
KNOX
WATERLESS
25-30 H. P.
$2500

OUR 1907 CREATION, THE

Model "H" Knox Waterless

is shown for the first time. It embodies more points of merit and contains more high grade material and workmanship than any other car at its price. Months of thorough testing have failed to reveal a weakness, and we offer it confident of its ability to serve all the purposes of a touring car under any conditions. Advance pamphlet and details are ready for mailing. SPECIFICATIONS:—Horse-Power, 25-30; four cylinders, 4⅜ in. x 4¾ in.; 32-in. x 4-in. tires; wheel base 102 inches; selective sliding gear transmission, three speeds forward and reverse; shaft drive, with ball and rolier bearings; chrome nickel steel drive gears; capacity, five persons; speed, 45 miles an hour; weight, 2,250 pounds, *actual;* color, Napier green or Mercedes red, with red leather upholstering, all of Knox quality.



Knox Automobile Company
Member Association of Licensed Automobile Manufacturers.
SPRINGFIELD, MASS.

MICHELIN UNIFORMITY

is an established fact—not only as to such being the fact, but as to what it represents.

We assume no responsibility for tires that have been imported by any other concern (we being the only authorized agents in America) but we are prepared to treat all purchasers through us of Michelin Tires in the fairest manner.

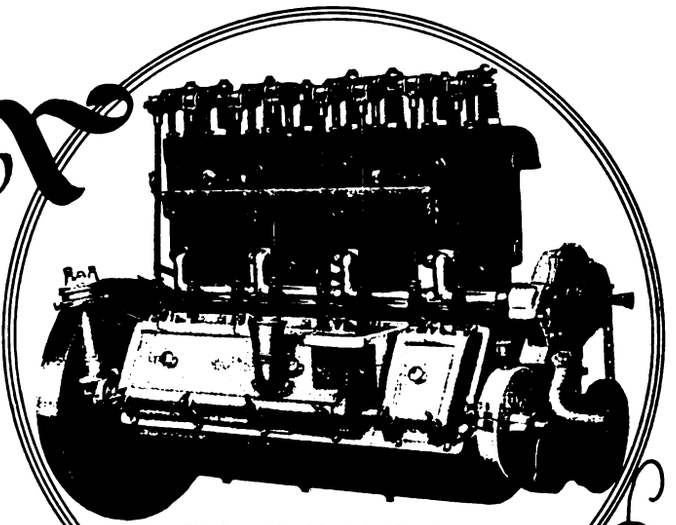
MICHELIN PRODUCTS SELLING COMPANY

E. D. WINANS, Manager
31-33 WEST 31st STREET, NEW YORK CITY
SOLE AMERICAN REPRESENTATIVES OF MICHELIN et CIE, CLERMONT-FERRAND, FRANCE

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Rambler

THE CAR THAT IS RIGHT



Right side Model 15. Motor showing valve mechanism

Motor power is commonly rated by calculations based on cylinder capacity, gauge tests, etc.

Through faulty design, poor valve action and overheating, the actual power often falls far below this rating.

The Rambler motors are fitted with over-head valves of ample size and opening. This results in quick clearance of exhaust gas, which assures a full charge of fresh vapor and a cool engine.

The workmanship is of the same high class that has characterized all Rambler Models.

Model 15, the leader of the 1906 line, is a powerful touring car, with 35-40 horse power motor, and every modern feature in power, plant and equipment.

Full details of this and five other models in the second edition of our 1906 catalogue, which is at your service.

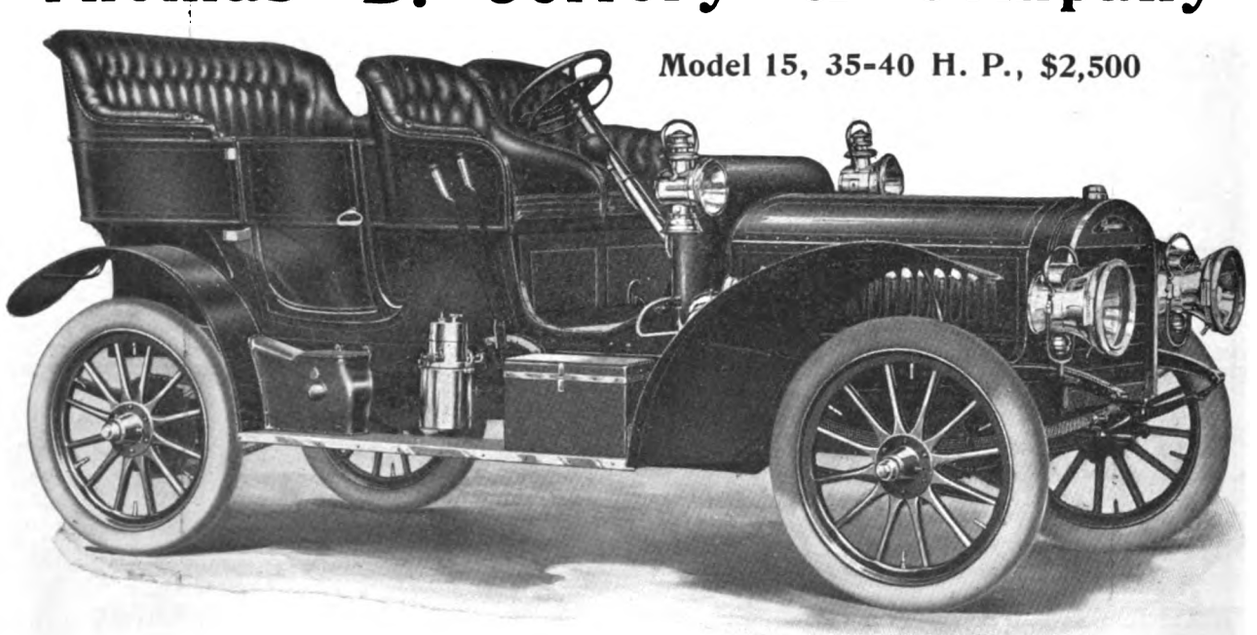
Main Office and Factory, Kenosha, Wisconsin

BRANCHES:

Chicago, Milwaukee, Boston, Philadelphia, San Francisco.

New York Agency: 38-40 West 62d Street. Representatives in all leading cities.

Thomas B. Jeffery & Company



Model 15, 35-40 H. P., $2,500

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THE MOTOR WORLD

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, September 13, 1906. No. 15

LICENSEES ALLOT SHOW SPACE

New Plan Employed which Worked Well—New Screw Standard Promulgated.

Although a deal of routine work was disposed of and much profitable discussion engaged in, only two matters of public interest marked the meetings of the Association of Licensed Automobile Manufacturers in New York on Thursday and Friday last, i. e., the allotment to the members of space in the Madison Square Garden Show, January 12-19, and the formal promulgation of the standardization details.

The method used in alloting the show space was wholly different from that of previous years, and is said to have "worked like a charm" and to have satisfied everyone. The importers and the Motor and Accessories Manufacturers had their space granted in bulk and will do their own alloting. What was done by the show committee related to the twenty-nine manufacturers of cars who are members of the A. L. A. M. They agreed to the new plan of granting first choice of space to the manufacturer whose output and sales had been largest during the year ending June 30, second choice to the one showing the second largest output and so on. As all these makers are licensed under the Selden patent and render regular statements as to output, this plan could be followed with exactness and general satisfaction.

The standards adopted for nuts, screws and bolts was contained in a handsomely printed volume, covered by copyright. They are given in detail elsewhere in this issue. After the meeting it came out that not only have the members of the A. L. A. M. prepared to employ the new standards on their 1907 cars, but that the standards are available for the use of all other manufacturers who may wish to take advantage of them. The A. L. A. M. has already arranged with practically all American makers of nuts and screws to supply those articles of the new standards.

Independents to Allot in October.

That its members may have an opportunity for combining business with pleasure, the American Motor Car Manufacturers' Association plans to have a special meeting at its headquarters in New York, Friday, October 5th, which is the day before the Vanderbilt cup race. At this time space will be allotted to the members of the association for the seventh annual automobile show, to be held in Grand Central Palace, December 1 to 8. There will probably be an all-day session on the drawing and other matters of importance to the association. The next day the members will be cared for at the Vanderbilt cup race, boxes on the official stand being secured for the purpose.

Lozier Buys Stamford Plant.

The plant of the Lozier Motor Company at Stamford, Conn., heretofore operated under a lease from the Ball Mfg. Company, has been purchased outright, and will be run by the Lozier Motor Company as an adjunct to the main works of the company at Plattsburg, N. Y. The Stamford works are being refitted and put in condition with a view to utilizing the plant to its fullest capacity on the 1907 product and will enable the company to materially increase the output for 1907. Additions have been made to the Plattsburg plant, which now is working to its fullest capacity.

Money Maker Moody Succeeds Gaylor.

C. Moody, who has been mechanical engineer at the United States mint in Philadelphia, has been appointed general manager of the Waltham Mfg. Co., to fill the vacancy caused by the resignation of L. B. Gaylor. John Robbins, the factory superintendent, has also tendered his resignation but his successor has not yet been named.

Thorp Out of Aerocar.

H. H. Thorp, sales manager of the Aerocar Co., Detroit, has resigned that office. His plans for the future are not yet formulated.

NEW HEAD FOR THE G & J

Resignation of Smith Brings Elevation to Anderson—What Caused the Change.

Because of the growth of the Premier Motor Car Co., J. D. Anderson has become president of the G & J Tire Co.

This apparent anomaly is explained by the fact that H. O. Smith, former president of the tire company, was also the head of the motor car company. He has filled both offices successfully for several years, but the increased and increasing business of the two concerns has attained such volumes that he felt he could no longer do full justice to himself or to the respective companies. Accordingly, he resigned the presidency of the tire company and Mr. Anderson was last week elected his successor; Mr. Smith, however, remains a G & J director.

Anderson is no stranger to the G & J tire or the G & J company. During recent years, he has served as vice-president of the Hartford Rubber Works Co., but previous thereto he was sales manager of the G & J Tire Co., so that his return to Indianapolis is in the nature of a return to his old love. Than Anderson, there are few, if any, better posted tire men; he originally started with the Hartford Rubber Works Co. and practically has grown up with the business, the details of which he has at his finger tips. The vacancy in the Hartford institution created by his elevation has been filled by the election of V. B. Lang, heretofore identified with the Morgan & Wright interests.

Wayne Delivers Legal Cross-Counter.

J. S. Draper, sales manager of the Wayne Automobile Co., Detroit, came to New York late last week and immediately there was "something doing" in the matter of the $78,000 suit brought against the company by the Wayne agency in New York.

The Detroiters replevined the cars in New York which had not been attached by

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the agency and through Hon. Job E. Hedges, who also is attorney for the American Motor Car Manufacturers' Association, made answer to action instituted by their former agents.

The manufacturing company declares that the charges made by the New York concern are absurd; that they have never failed to fill any orders properly placed with them and that they are not indebted to the New York Company in any sum whatever. They further claim that the New York company is indebted to them in a very considerable sum for cars shipped to them which have not been accounted for, and are planning to take vigorous steps to defend the law suit brought against them and to obtain possession of all of the cars attached by the sheriff.

Dragons Will List at $1,500.

The recently organized Dragon Automobile Co., Detroit, already has its product well under way and expects to have its first batch of cars in evidence within four weeks. The Dragon, which, according to reports, is the creation of Designer Brush, formerly of the Cadillac Co., will be a four-cylinder touring car with sliding gear transmission, and will list at $1,500. The engine will be 4x4½ inches with a rating of 24-26 horsepower. The president of the company is John Kane Mills, formerly interested in the Oldsmobile Company of New York, while F. S. Corlew, who had charge of Oldsmobiles in Boston, will be vice-president. The general manager is Harry Rawle, other obligations had not been paid.

Ariel Will Fly to Baltimore.

The Ariel Motor Car Company, which only this year moved from Boston to Bridgeport, Conn., to encounter financial stress, has decided to move to Baltimore, Md. It is stated the company has formed an alliance with a Baltimore concern, the name of which is not given. Some time ago the sheriff levied on the Bridgeport factory, because the wages of the laborers and numerous other obligations had not been paid.

Tischbein Coming to America.

Willy Tischbein, one of the directors of the Continental Caoutchouc & Gutta-Percha Company, of Hanover, Germany, and president of the Continental Caoutchouc Company of New York, is due to arrive in this country on September 25th, on the Crown Prinz Wilhelm. Mr. Tischbein usually makes at least one visit to America each year.

Mosler Becomes a Corporation.

Having become a corporation under the laws of New York, A. R. Mosler & Co., the well-known makers of spark plugs and other ignition apparatus, have elected these officers: President, A. R. Mosler; secretary and treasurer, W. G. Liebling.

The Week's Incorporations.

Columbus, Ohio.—Oscar Lear Automobile Co., under Ohio laws, increases capital stock from $30,000 to $200,000.

New York City, N. Y.—Continental Garage, under New York laws, with $50,000 capital. Corporators—J. D. Tooker, G. T. Mortimer and T. Morsch, all of New York City.

New York City, N. Y.—Motor Cab Co., under New York laws, with $5,000 capital. Corporators—H. P. C. Browne and H. J. Craig, of New York City; H. F. Carson, of Haverstraw.

New York City, N. Y.—Amsterdam Avenue Garage Co., under New York laws, with $1,000 capital. Corporators—E. Meyer, Jr., L. B. Kendall, of New York City; J. W. Hoban, Livingston, S. I.

Cleveland, Ohio.—Cleveland Motor Car Co., under Ohio laws, with $300,000 capital; to make automobiles. Corporators—William L. Colt, James Laughlin, Jr., A. R. Davis and S. W. Hartley.

Kittery, Me.—Brown Speedometer Co., under Maine laws, with $10,000 capital; to make speedometers. Corporators—President, H. Mitchel, of Kittery; treasurer, C. H. Stevens, of Boston, Mass.

New York City, N. Y.—West Eighty-seventh Street Garage Co., under New York laws, with $5,000 capital. Corporators—Bert C. Bell, John E. Billmyer and Edward F. Roche, all of New York City.

Los Angeles, Cal.—H. O. Harrison Co., under California laws, with $50,000 capital, $30 subscribed; to make and deal in automobiles. Corporators—Ray D. Robinson, J. W. McAlister and H. O. Harrison.

Indianapolis, Ind.—Tubaphone Mfg. Co., under Indiana laws, with $10,000 capital; to manufacture and sell motor vehicle accessories. Corporators—William T. Miller, John W. Comstock and John W. Oswald.

New York City, N. Y.—A. R. Mosler & Co., under New York laws, with $30,000 capital; to make automobile attachments. Corporators—A. R. Mosler, W. G. Liebling and M. M. Blumenthall, all of New York City.

Syracuse, N. Y.—Cushion Wheel and Tire Co., under New York laws, with $100,000 capital; to make wheels for automobiles. Corporators—Edward Mitchell and T. H. Ward, of Syracuse; E. D. Woods, of Indianapolis.

Camden, N. J.—Wilmot Motor and Cycle Mfg. Co., under New Jersey laws, with $125,000 capital; to manufacture automobiles, motorcycles, bicycles, etc. Corporators—C. M. Cuckman, W. Davis, A. S. Flowers and M. M. Garrison, of Camden, and R. K. Dix of Atlantic City.

In the Retail World.

Fire destroyed the garage of Frank C. Smith, at Columbia, Tenn., on Thursday of last week. The loss is $2,000, with no insurance.

Fire caused a loss of $3,000 in the garage of the Adams Automobile Co., Winona, Minn., recently. The loss was partially covered by insurance.

Howard Avery has contracted for the erection of a one-story brick garage on Ottawa street, opposite the city hall, Grand Rapids, Mich. The cost will be $6,000.

The recently incorporated Auto Car Co. of New Jersey, has opened a garage and salesroom at 226 Halsey street, Newark, N. J., under the management of Samuel B. March. The company is agent for the Dorris car.

The Matheson Company of New York has placed the management of its Philadelphia agency with Cornelius Baker. He will make his headquarters at the Bellevue-Stratford garage.

A new concern, the Ellis Motor Car Co., will shortly open a salesroom at 222 Halsey street, Newark, N. J. The company will handle the Pierce cars, under the management of Walter Ellis.

The assets of the Salt Lake Automobile Company, of Salt Lake City, Utah, which went into bankruptcy some time ago, were disposed of at public sale last week. The lease on the building at 118 State street was sold for $125 and four second-hand cars went for $660. Some sundries brought $150.

Negotiations were closed last week by the Chicago Packard agency, now controlled by W. L. Delafontaine, W. P. Johnson and E. R. Lightcap, for a new building at 1615-1617 Michigan avenue. A two-story structure will be ready for occupancy on November 1st. In the meantime the firm has temporary headquarters in the old Peerless agency at 1332 Michigan avenue.

Claiming that Louis C. Howard, manager of the Gotham Automobile Co., of 216 West Fiftieth street, New York City, had substituted a practically worthless machine for a $1,200 car which the latter had sent in for repairs, Lincoln S. Rogers, had Howard arrested on Monday afternoon. The substitution occurred on May 16, the complainant avers, when Howard was connected with the Auto Service Co. After showing $25,000 worth of securities, Howard was paroled for a further hearing.

R. B. Shaw, who runs a candy store, news stand and city messenger service at 256 North Main street, Decatur, Ill., has purchased the automobile business and garage on East Wood street, that city, and will move his other businesses to the new place and run them all, in addition to conducting an automobile livery. It might be added that he has taken George Johnston into partnership, as managing four lines of business is almost too great an undertaking for even an all-around man. It is not stated which he will stick to in case either does not pan out.

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BLAMES THE BODY BUILDERS

Says They have not Kept Pace with Automobile Industry and Offers Suggestions.

Experience has shown that given the proper sort of care, and with the right sort of handling of the car on the road, the common run of automobile tires as made today are fully competent to satisfy the demands of even the most rigorous service. But it has also developed that in a greater majority of cases where fault is found with the tire equipment of a car, the blame really lies not so much with the tires as with one of two other factors. Namely, the tires may be too small for the car, which is of frequent occurrence, or else, they may not be receiving the right sort of care. The motoring world has been a long time in arriving at this conclusion, but at last the truth seems to be better appreciated. Tires which are overworked, either through excessive use, or through being used when not fully inflated, display an inordinate amount of wear, and soon cause trouble in one way or another. Tires which are overloaded, manifest the same tendency, and deteriorate more rapidly than they should, while those which are neglected in any one of a half dozen ways, fail almost as soon.

It was recently pointed out in these columns that a frequent and prolific source of tire trouble arises from the use of enclosed bodies which are too unwieldy to be stable, the tendency being most prevalent among cars of the more elaborate type of touring vehicle. It is further evident that the use of bodies which are unstable from any reason, or those which are too heavy to correspond with the chassis, tends to create a swaying motion under severe highway conditions which is distinctly harmful to the tires. In other words, the truth is being forced home, that in recognition of the acknowledged weakness of the pneumatic tire, the car should be designed with reference to the effect of use on the tires, rather than that the tires should be adapted to the car according to purely arbitrary standards. And while this principle does not apply in absolute literalness, still it is true that after determining the dimensions of the chassis and hence, the tire sizes, the body load should be prescribed within certain narrow limits to fit the specifications thus set down.

Speaking of the effect of overbalanced bodies on the tires, and the need of careful attention during the period of service, a motorist of long experience said the other day: "I cannot help thinking that coachbuilders, taken as a class, have not kept up with the automobile movement as they should have done. They have not reduced the weight of their products as they might have done. In order to retain strength they have held to old-fashioned iron supports and other devices which, so far as I can see, might very easily be done away with if some attention was given to the matter. But so long as heavy coachwork is the only kind obtainable it becomes necessary to see what can be done to preserve the tires. In the first place it is as well to choose the lightest coachwork obtainable, and to see that it is designed so as to give the complete machine a good balance. For touring only open coachwork should be used, and this should be so contrived that all luggage may be carried low down and not exposed along the sides or at the rear. The entire body should be comprised within the four wheels. In this way corners may be taken without fear of capsizing or putting undue pressure on the tires of the outside wheels.

"Secondly, tires should be chosen large enough for the work they have to do. For the rear, nothing less than 4½-inch tires should be taken, and for the front nothing under 4 inches. Thirdly, keep these tires inflated to a pressure of five and a half atmospheres. Fourthly, insist upon the 'chauffeur' making an examination of the tires each night after a run, in order to detect cuts. Have these cuts thoroughly washed out, in order to remove sand and grit, and then fill up with a special solution sold by the tire companies for the purpose. In case the cut is serious the tire should be dismounted and sent away for re-vulcanisation. Fifthly, do not run with tires which are worn down to the canvas. Before they reach this state it is well to take them off, have them re-treated and keep them exclusively for town use.

"Finally, I should say that every driver should be thoroughly impressed with the responsibility of the situation, and that he should habituate himself to holding the steering-wheel with a tighter grasp as speed increases, and as corners are being rounded. In this case the driver is prepared should a tire burst. The practice of racing along at high speed, holding the steering-wheel negligently with one hand, cannot be too strongly condemned. A burst tire happening to the driver who has strong arms and who holds his wheel well will be of small consequence, providing that the automobile is well balanced, with the weight low."

Fire Destroys Detroit Body Factory.

The stock room and paint shop of the Anderson Carriage Co., Clay and Riopelle streets, Detroit, and the office of the C. R. Wilson Body Co., adjoining, who make carriage and automobile bodies, were totally destroyed by fire which started at 3 o'clock Sunday afternoon. The fire originated in the engine room of the Anderson Company and is thought to have been due to defective insulation. The loss is not known, but Superintendent McFarlane said it would probably amount to $100,000. It is fully insured and work of rebuilding will be begun at once.

"BIG MONEY" IN TIRE FLUID

At Least, Ellison Made Several Men Believe it—Then He Goes to Jail.

Charged with swindling, Oscar L. Ellison, 47 years old, of 308 West Forty-seventh street, New York City, was arrested on Thursday last and now languishes in the Tombs prison in default of $1,500 bail The complainant was Frank C. Howe, of 23 West Ninth street, who claimed that Ellison had parted him from $1,300 in the tire fluid business.

Howe saw an advertisement in a morning newspaper asking for a partner with from $1,000 up and promising big profits, and becoming interested, he answered it, which led to his meeting with Ellison, who vividly painted the millions to be obtained in the tire fluid business. Howe audited the defendant's accounts, finding a seeming profit of $600 a month. Then he bought stock and became an assistant manager.

Howe said that as soon as he got into the concern—it was in last January—business fell off amazingly, until one month recently the gross sales were only $15. Then he decided that he had been swindled and asked for his money back. It was refused.

The police say Howe is only one of ten or more whom Ellison succeeded in fleecing out of about $25,000.

Elkhart Seeks the Simplex.

Strenuous efforts are being made by the American Simplex Motor Co., of Mishawaka, Ind., which was incorporated some time ago with $100,000 capital, to locate in Elkhart, Ind. Endeavors are being made by a few Elkhart ment to raise subscriptions to $50,000 worth of stock. The directors of the company are A. G. Graham, South Bend; J. H. Fuller, M. W. Fix, A. Kamm, H. L. Bell, D. A. Shaw and A. J. Gulick, all of Mishawaka, the last named Gulick, all of Mishawaka, the last being the inventor of the motor to be used.

Orphan Asylum for Automobile Parts.

The old Chicago Orphan Asylum property at 2228 Michigan avenue, on the west side of the boulevard, that city, has been leased for two years to W. O. Duntley, acting for the Automobile Parts and Equipment Company. This company is now at 1254 Michigan avenue. It will retain its present location and is fitting the orphan asylum property for use as a factory.

Jones to Build on Broadway.

J. W. Jones, maker of the Jones Speedometer, has purchased the property at the northeast corner of Seventy-sixth street and Broadway, New York City, and will erect thereupon a modern garage and salesrooms. It will be a four-story and basement structure and the company will use the building for its New York salesrooms and offices.

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Your Tire Equipment will pretty surely be of the Mechanically Fastened Type

But

beware of the style that needs no help to detach—that "comes off of its own accord," or near enough so when it is "demonstrated,"

Heed Safety

The Fisk Mechanically Fastened Tire

IS BUILT NOT ONLY FOR THOSE WHO WISH TO AVOID EXASPERATING TIRE TROUBLES AND WHO DESIRE COMFORT AND ECONOMY IN TIRE MAINTENANCE, BUT FOR THOSE WHO WISH TO BE PROTECTED AGAINST ACCIDENT

ITS POSITIVE RIM LOCKING DEVICE MAKES IT ACCIDENT PROOF. It absolutely cannot come off the rim of its own accord whether ridden inflated or deflated; yet its flat rim insures great ease of detachment if ever necessary.

THE FISK RUBBER CO.

CHICOPEE FALLS, MASS.

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Cheese-Paring on the Equipment.

In some quarters of the industry there are marked indications of a disposition to move in the wrong direction—a tendency toward penny-wisdom in the matter of equipment, and this despite the higher level of list prices for many cars that is in sight.

There has been lavish expenditure and effort to produce perfect vehicles, but the penny-pinching comes in the selection of the tools, the lamps, the horns and even the tires. An amazing lot of cheap and indifferent accessories of the sort have developed and undoubtedly there is a great temptation to profit by their use, but the manufacturer who truly values his reputation will speedily realize that it is a time when he should nerve himself to resist the wiles of the tempter. The man who claims to produce a high-grade car cannot afford to provide other than high-grade equipment; the purchaser of such a car is entitled to that equipment and if he is wise, he will see that he gets it. More than once it has been remarked that the quality of the equipment constitutes a pretty good index to the quality of a car and the policy of its makers; and there is more truth than poetry in the assertion.

In this connection, it is worth recalling for the moral it conveys, that the discomfiture of the bicycle industry began at about the time cheese-paring processes found lodgment and one of the first of those processes was the cheapening of the equipment. It was one of the chief factors that made possible the cheap and nasty bicycle which worked such widespread mischief. The equipment of a vehicle is of potent influence on the comfort and convenience of the user and in keeping him satisfied and in retaining his good will.

Changes in Powers and Weights.

In noting the improvement that has been brought about in the automobile within the past few years, there is nothing that strikes the observer so forcibly as the changed relation of weight to power—one of the items generally included in the sweeping statement of "increased efficiency." Just how much the complete car of, say, only four years ago, weighed per horsepower, will probably never be known unless someone has sufficient curiosity to take one of these old timers on the scale and see for himself. It seems quite certain that their designers were not particularly interested in the question or we should not have had cumbersome and weighty bodies saddled on ten or twelve horsepower engines.

It is more than likely that, in such instances as that referred to, where what was then considered to be a "big touring car" had less than fifteen nominal horsepower and no one knows what actual horsepower, the ratio of weight to power was something like 200 to 1. That is, 200 pounds of dead weight for every horsepower of the motor. Practice soon demonstrated how grossly they were underpowered so that this probably is no exaggeration of the status of some of the more aggravated cases. But improvement has come about at such a pace that two years ago makers began to claim that this ratio had been cut exactly in half; that their cars weighed but 100 pounds for every horsepower and at the opening of the present year, this was halved again, at least one maker claiming that his car weighed but 50 pounds per horsepower.

Of course, it is something that has worked both ways—the weight of the car has been reduced and the horsepower of the motor increased and a fictitious advance in the latter would naturally be responsible for a decrease in the ratio that did not exist except in the maker's mind. Looked at from another viewpoint, it will be seen that it is but a repitition of bicycle history—a striving for lightness, and in the present instance there is the powerful incentive of reduced tire upkeep and operating expenses generally to further it. And there is also the same danger that cars may be made too light for either safety or durability. The maker of high powered and high priced cars can easily claim a low ratio of weight to power for the simple reason that the latter is not alone high but increases out of all proportion to weight and is frequently over-rated in addition. For instance, it would reflect no great credit on a maker to claim that his car weighed but 100 pounds per horsepower if the latter were given as fifty, for that would mean that the car would tip the scales 5,000 pounds. At the other extreme, is the 30 horsepower car that weighs but 1,500 pounds, or thereabout. A light car is not alone easier to maintain, but far cheaper to build so that in attempting to reduce the weight below a limit that experience has shown is necessary in a car designed for every-day use, the maker is weakening the crust that bears his reputation and is apt to plunge through.

The Development of Starting Gears.

Although but little seems to have been done by the motor manufacturers in the way of attaching permanent self-starting gears to their cars, it is plain to see from the reports of the various patent offices, that the subject is under consideration, and that a certain amount of progress is being made in that direction. Indeed, to judge from these indications, which always are precursors of a new epoch in design, there is likely to be, perhaps not later than the beginning of the new year, a general adoption of starting gears by the makers of the more elaborate class of cars.

One of the most recent of the new developments, comprehends the application of the turbine principle to the starting mechanism, employing compressed air for the storage of energy, and also providing for

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the operation of the compressor only at such times as the motor is running idle with regard to the driving mechanism of the car. This automatic provision for the use of power which otherwise would go to waste, is evidently of considerable importance. Also, the use of compressed air in the starting system makes possible its application to the brakes, the inflation of the tires, and other uses about the machine in which it may serve as a convenient accessory.

In detail, the system comprises a small piston compressor mounted over the engine crank shaft, and driven by eccentrics loosely mounted on the shaft, but compelled to turn with it when a claw clutch is engaged. The compressor is fitted with spring seated exhaust valves, the air inlet being through cylinder ports at the base, uncovered at the end of the stroke. In this way, a minimum of mechanism is employed, and the factor of reliability thereby raised to a high figure. The outlet to the tank is provided with a check valve, and there are two service pipes taken from it, one to the starting wheel, and the other to the brake cylinders, or other accessories which are to be actuated by the system.

The starting gear proper consists of a simple reaction turbine wheel mounted on the end of the crank shaft, and turning with it at all times, the impulse coming from a single jet, suitably controlled. By which means, the mechanism involved in accomplishing the starting of the motor, is reduced to the lowest terms conceivable, and absolutely smooth turning action secured.

The automatic feature of the compressor is included in the method of actuating the clutch which throws it into or out of action. This is accomplished by the direct movement of a lever, which is interconnected either with the master clutch of the transmission, or with one of the brakes. By this means when the clutch is thrown out of action, or when the brakes are applied, as the case may be, the compressor is started, its operation continuing until the car is started again. The method of connection need be of only the simplest possible description, and not likely to become disordered. Thus, at such times as the motor is turning idly, with respect to the transmission, it is storing air for starting. Excessive pressure in the receiver is, of course, forestalled by a safety relief valve.

The general utility of compressed air, requires no demonstration. Also, the method of using a simple compressor of the self-acting, automatically-controlled type, also recommends itself to the designer as being of the most adaptible sort. The use of a turbine wheel mounted on the crank shaft, is, however, of somewhat doubtful practicability, as it seems hardly likely that sufficient velocity could be acquired at the periphery to secure enough torque to start even a well balanced motor with the compression relieved temporarily. By some method of reversing the compressor and converting it temporarily into a motor, as is perfectly practicable, however, it would appear that the same result could be secured with a reduction in the necessary mechanism and no loss of efficiency to the plant. Certainly, the subject is one worthy of the most faithful study, with the object of early perfecting such a device and applying it permanently to the high powered car.

The man who is sure he has the only spring wheel that is going to do away with pneumatic tires and revolutionize the automobile to his everlasting fame and enrichment, is still on deck. His name is legion and he keeps right on making contraptions of springs of varied sizes and forms, and although many have already preceded him there would appear to be no end to the number of combinations to which springs will lend themselves. It is not to be doubted for a moment that a wheel with springs will make far more comfortable riding than one without, Just as a seat so provided will materially lessen the jolting of an ordinary truck. But that any positive combination of springs, or even springs and rubber, can be evolved that will be on a par with rubber and compressed air, appears to be a will o' the wisp that will continue to lure its followers on to certain disappointment.

If it never performed another service, its standardizing of nuts and bolts is a work of such magnitude and far-reaching usefulness that it well may constitute an enduring and splendid monument to the Association of Licensed Automobile Manufacturers. It is hardly probable that its bitterest enemy will refuse to admit this truth or to withhold a meed of praise. It is a work that is akin to bringing order out of chaos and the good results will be felt not more by manufacturers than by dealers and drivers. It is the little things of life that cause the most vexation and rendering it possible for the owner of any car to step into practically any automobile establishment with assurance that the missing nut or bolt of the proper size is there obtainable is in the nature of a benefit that even the dullest dunce can appreciate.

To the prospective purchaser of a motor car, the word efficiency has a terrorful sound which is apt to be repulsive. He wants a car that will go under reasonable incentive, and beyond that he is not concerned. But when he is asked whether he will prefer to have the power of the motor applied at the driving wheels, or "wandering about among the machinery," as one maker puts it in his catalogue, he is approached on a tangible basis. What the direct man wants is a direct approach in direct language. Technical mystifications have their value, and scientific terminology demands a place in all trade literature, but it must not be permitted to bury the pointed truths of which the seeker after information is so much in need.

Failure to put in the plug and shortage of gasolene are still prolific causes of profanity and loss of temper, despite the vast increase in knowledge on the part of motorists generally. It is a good plan to see that neither of these is overlooked before calling on Heaven and earth to witness that you have done everything that mortal man can think of, but, mule-like, the motor absolutely refuses to start. Remember, the man that built the car never tried to start it that way and could not provide against such contingencies.

And last, but not least, it is announced that a very respectable artificial rubber is to be made by a certain magical treatment of cereals. Grain-rubber tires being, of course, a natural consequence, a new and fertile field is now opened for the ever-ready jokesmith, who may be expected to step forward with suggestions as to the advantages of the rolled-oat tread, and the what-nut inner tube.

Have we not had about enough of these long-distance record-breaking trials on the road? Is it not about time that manufacturers entered into an agreement to cease such law-breaking, death-inviting enterprises?

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HERE'S THE NEW SCREW STANDARD

Although they were adopted in April last, it was only this week that the Association of Licensed Automobile Manufacturers formally promulgated its new standards for nuts and screws; at the same time it was made known that the standards have been made public property for the use of any manufacturer who may desire to use them and that makers of the articles are prepared to supply them on demand.

The work of standardizing was a monumental task and the results cannot fail to prove far reaching. The committee of the A. L. A. M. Mechanical Branch that performed the labor was as follows: A. L. Riker (ex-officio), H. E. Coffin, H. P. Maxim, Charles B. King, John Wilkinson, Russell Huff and Henry Souther—in consultation.

The United States standards for bolts, nuts and screw-threads were established by the United States Navy Department in May, 1868. These standards remained pre-eminent for many years and have proved of great convenience and value. During recent years, however, manufacturers of fine machinery have found from experience that for a large portion of their work the United States standards for pitch of threads have been too coarse, and the dimensions of heads and nuts too large. In order to secure satisfactory construction special fine pitch screw-threads and smaller nuts have been made. The number and variety of these special threads and nuts have finally become such that great confusion, inconvenience and expense have been caused. It was to overcome this condition the Association of Licensed Automobile Manufacturers evolved the new screw standard.

This standard is to be known as "Association of Licensed Automobile Manufacturers' Standard for Hexagon Head Screws, Castle and Plain Nuts."

The term "screw" is not intended to supplant the present so-called "coupling-bolt" and "cap-screw."

The term "plain hexagon nut" is intended to supplant the present so-called "United States standard nut."

The term "castle nut" is given to a new nut, which is intended to be used where a positive locking system is desired.

The term "facing" is given to a relieved portion under the screw heads, castle nuts and plain nuts.

In addition to adopting standard dimensions which are in inches, a standard for materials is also set. For all screws and nuts this must be steel having a tensile strength of at least 100,000 pounds to the square inch, and with a minimum elastic limit of 60,000 pounds to the square inch. All heads and nuts are also to be "semi-finish." The length of the threaded portion of the screws is to be one and one-half times the body diameter and the thread is to be the usual United States Standard.

These are the specifications that apply:

1. Material.—A better material than ordinarily used for screws is deemed necessary. The selection of a better material depends to a considerable extent upon the possibility of commercially machining it in screw machines. Such material has been found in several qualities of steel, having a tensile strength of not less than one hundred thousand (100,000 lb.) pounds per square inch, and an elastic limit of sixty thousand (60,000 lb.) pounds per square inch, as compared with fifty or sixty thousand (50,000 or 60,000 lb.) pounds per square inch tensile strength and thirty-five thousand (35,000 lb.) pounds per square inch elastic limit now in common use.

The screws and nuts described in this standard are to be made of this better material. Screws are to be left soft. Screw heads are to be left soft. The plain nuts are to be left soft. The castle nuts are to be case-hardened.

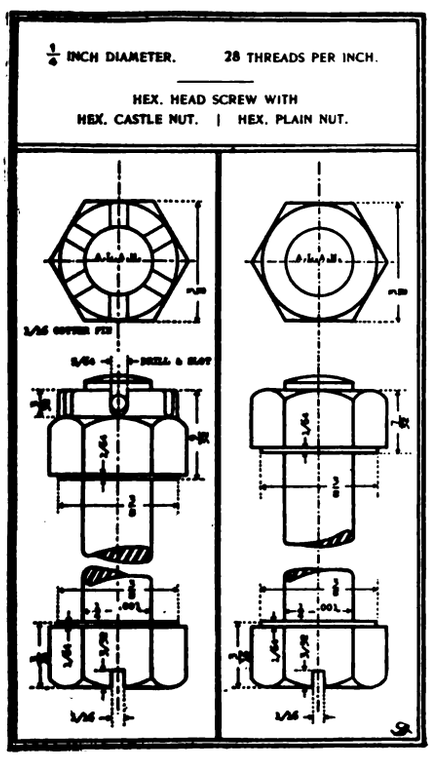
It is assumed that where screws are to be used in soft material, such as cast-iron, brass, bronzs or aluminum, the existing United States standard pitches will be used.

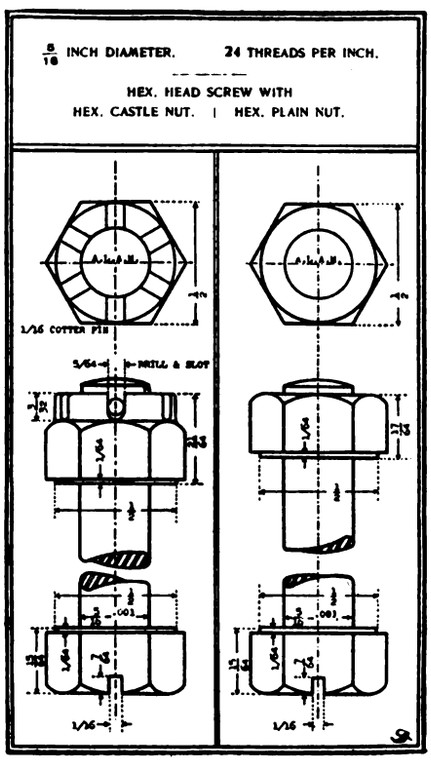
2. Tolerance.—The body diameter of the screws shall be one-thousandth (.001″) inch less than the nominal diameter, with a plus tolerance of zero and a minus tolerance of two-thousandths (.002″) inch.

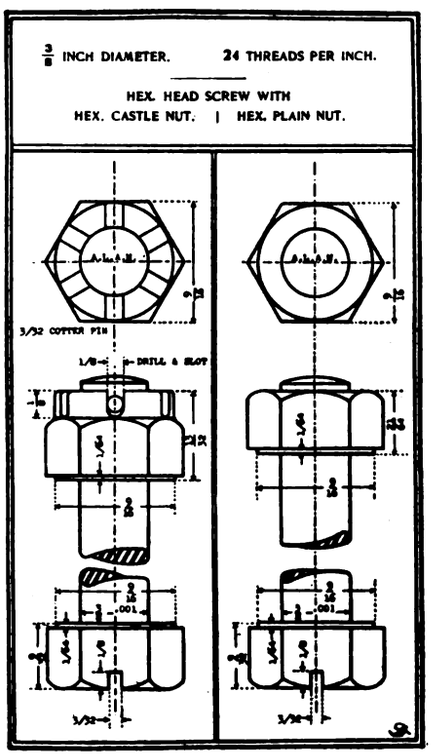
The nuts shall be a good fit, without perceptible shake.

The clearance between tops of threads and bottom of threads in nuts shall be that existing in the present practice of machine screw makers; that is, the tap shall be between two-thousandths (.002″) inch and three-thousandths (.003″) inch large.

The detailed dimensions and specifications of the screws, castle and plain nuts, from one-quarter (¼″) inch to one (1″) inch inclusive, are as follows:







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Table A—Screws.

(INCHES)

[Form of thread, United States Standard.]

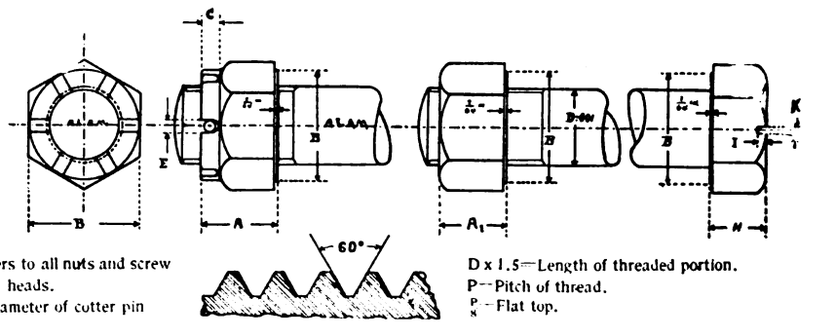
DIAMETER	PITCH	LENGTH OF THREADED PORTION	DIAMETER OF HEAD ACROSS FLATS	THICKNESS OF HEAD	DIAMETER OF FACING UNDER HEAD	DEPTH OF FACING UNDER HEAD	WIDTH OF SLOT IN HEAD	DEPTH OF SLOT IN HEAD	DIAMETER OF COTTER PIN HOLE
1/4	28	3/8	3/8	5/16	3/8	1/64	1/16	3/32	5/64
5/16	24	15/32	1/2	13/64	1/2	1/64	1/16	7/64	5/64
3/8	24	9/16	9/16	9/32	9/16	1/64	3/32	1/8	1/8
7/16	20	21/32	11/16	21/64	11/16	1/64	3/32	1/8	1/8
1/2	20	3/4	3/4	3/8	3/4	1/64	3/32	1/8	1/8
9/16	18	27/32	7/8	27/64	7/8	1/64	3/32	1/8	5/32
5/8	18	15/16	15/16	15/32	15/16	1/64	3/32	1/8	5/32
11/16	16	1 1/32	1	33/64	1	1/64	3/32	1/8	5/32
3/4	16	1 1/8	1 1/8	9/16	1 1/8	1/64	3/32	1/8	5/32
7/8	14	1 5/16	1 1/4	37/64	1 1/4	1/64	3/32	1/8	5/32
1	14	1 1/2	1 7/16	3/4	1 7/16	1/64	3/32	1/8	5/32

Table B—Plain Nuts.

SCREW DIAMETER	THICKNESS OF NUT	DIAMETER ACROSS FLATS	DIAMETER OF FACING	DEPTH OF FACING
1/4	7/32	3/8	3/8	1/64
5/16	17/64	1/2	1/2	1/64
3/8	21/64	9/16	9/16	1/64
7/16	3/8	11/16	11/16	1/64
1/2	7/16	3/4	3/4	1/64
9/16	31/64	7/8	7/8	1/64
5/8	35/64	15/16	15/16	1/64
11/16	19/32	1	1	1/64
3/4	21/32	1 1/8	1 1/8	1/64
7/8	49/64	1 1/4	1 1/4	1/64
1	7/8	1 7/16	1 7/16	1/64

Table C—Castle Nuts.

SCREW DIAMETER	TOTAL THICKNESS OF NUT	HEIGHT OF CASTLE	DIAMETER OF NUT ACROSS FLATS OF HEX.	DIAMETER OF CASTLE	DIAMETER OF FACING	DEPTH OF FACING	NUMBER OF SLOTS IN CASTLE	DEPTH OF SLOTS IN CASTLE (to round bottom)	WIDTH OF SLOT IN CASTLE	DIAMETER OF COTTER PIN USED
1/4	9/32	3/32	3/8	3/8	3/8	1/64	6	3/32	5/64	1/16
5/16	21/64	3/32	1/2	1/2	1/2	1/64	6	3/32	5/64	1/16
3/8	13/32	1/8	9/16	9/16	9/16	1/64	6	1/8	1/8	3/32
7/16	29/64	1/8	11/16	11/16	11/16	1/64	6	1/8	1/8	3/32
1/2	9/16	3/16	3/4	3/4	3/4	1/64	6	3/16	1/8	3/32
9/16	33/64	3/16	7/8	7/8	7/8	1/64	6	3/16	3/32	1/8
5/8	23/32	1/4	15/16	15/16	15/16	1/64	6	1/8	3/32	1/8
11/16	49/64	1/4	1	1	1	1/64	6	1/4	3/32	1/8
3/4	13/16	1/4	1 1/8	1 1/8	1 1/8	1/64	6	1/4	3/32	1/8
7/8	29/32	1/4	1 1/4	1 1/4	1 1/4	1/64	6	1/4	3/32	1/8
1	1	3/4	1 7/16	1 7/16	1 7/16	1/64	6	1/4	3/32	1/8



B refers to all nuts and screw heads.
d—Diameter of cotter pin

D x 1.5—Length of threaded portion.
P—Pitch of thread.
P/8—Flat top.

GRAPHIC SUMMARY

D	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	7/8	1
P	28	24	24	20	20	18	18	16	16	14	14
A	9/32	21/64	13/32	29/64	9/16	33/64	23/32	49/64	13/16	29/32	1
A1	7/32	17/64	21/64	3/8	7/16	31/64	35/64	19/32	21/32	49/64	7/8
B	3/8	1/2	9/16	11/16	3/4	7/8	15/16	1	1 1/16	1 1/4	1 7/16
C	3/32	3/32	1/8	1/8	3/16	3/16	1/4	1/4	1/4	1/4	1/4
E	5/64	5/64	1/8	1/8	1/8	3/32	3/32	3/32	3/32	3/32	3/32
H	3/16	15/64	9/32	21/64	3/8	27/64	15/32	33/64	9/16	23/32	3/4
I	3/32	7/64	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
K	1/16	1/16	3/32	3/32	3/32	3/32	3/32	3/32	3/32	3/32	3/32
d	1/16	1/16	3/32	3/32	3/32	1/8	1/8	1/8	1/8	1/8	1/8

TABULATED SUMMARY

DIMENSIONS.

All dimensions in inches.

FINISH.

All heads and nuts to be semi-finish.

MATERIAL.

For all screws and nuts—steel,

Tensile strength, not less than 100,000 lb. per square inch;

Elastic limit, not less than 60,000 lb. per square inch.

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ALCOHOL SITUATION ABROAD

Government Investigators Return and Talk of Conditions as They Found Them.

Congressman E. J. Hill, in company with Internal Revenue Commissioner Yerkes, has just returned from a special trip abroad, having for its object an examination of the working regulations for free denatured alcohol in Great Britain, France and Germany. Mr. Hill has prepared a statement outlining the results of his investigation. He found that, spurred on by the keenness of German competition, Great Britain has found it necessary to make much more liberal provisions for the use of free alcohol than heretofore. Where a 10 per cent. denaturant had been used formerly only 5 per cent. will hereafter be used, thus materially reducing the cost. Beside that the cost of supervision, which has heretofore been thrown upon the consumer, will under the terms of the bill be hereafter paid wholly by the government.

Mr. Hill visited, in Manchester, two large factories where denatured alcohol was being used. "At one factory the proprietor told me that he bought his spirit in Liverpool and paid one shilling and sixpence for the English Imperial gallon. This would be about 30 cents to 32 cents for our gallon. A cask of spirit with faucet attached so that any one could have access to it lay near the door of the recovery oven room and close to the walk where all of the workmen and women passed, going to and from their work. When I called his attention to the fact that the spirit was greatly exposed, he said that any one would have to be pretty low down to drink the stuff, and assured me that they had no trouble whatever in that respect. They bought their spirit on printed requisition forms and were under bonds for its proper use. A government inspector came into the factory whenever he chose to do so. As a matter of fact, the record showed a call from him in April, May and June of this year. No records or accounts of use or return of product manufactured were kept. They used the spirit, recovered it and redistilled the product in their own factory and used it over again until it was used up. The only restriction placed upon them was that they were not allowed to sell either the original or the recovered spirit, but aside from that used it as they pleased.

"The mixture which was there used consisted of 90 per cent. ethyl alcohol, 10 per cent. methyl alcohol with 3 per cent of benzine added. Under the provisions of the new law the 10 per cent. of wood spirit will be reduced to 5 per cent. The benzine is not required to be added, except where recovery and redistillation is practiced.

"We had no trouble in buying completely denatured alcohol at any drug store as freely as we could buy any other article kept for sale. I can see no reason why the same freedom of use cannot be consistently accorded here.

"So far as I could see the practically unrestricted use of denatured alcohol in England was based on the good character and standing of the manufacturer, supplemented by a bond for its proper use, and in addition to that chemical control of the spirit by the government.

"The processes of denaturing were examined into very carefully in all three countries. In each of them special exhibits were made by expert methylators at the request of the government officials, and in each case we were accompanied to the establishments where the work was carried on by the representatives of the various governments.

"Perhaps a statement of the method in one case will answer for all others. At one extensive establishment near London, we found the process to be about as follows:

"A separate building was used for the purpose of methylating spirit. It was a building of about 20x30 feet in size, four stories high and strongly built. On the ground floor were four large iron tanks holding about 2,500 gallons each. On the next floor we found twenty-one casks of spirit which had just been brought under seal from the bonded warehouse. On the third floor were the wood alcohol tanks, and on the fourth floor cans full of methylating materials. Going to the fourth floor the covers to the wood alcohol tanks were removed (these tank covers were flush with that floor) and the contents gauged and tested. The quantity to be put in the tanks on the first floor was run off through pipes connecting with the first floor tanks and the upper tanks relocked. Then, going to the second floor, each cask of the grain spirit was gauged and tested and the tank covers, which were flush with that floor, were removed and the casks of the grain spirit were run off into the mixture in the tanks below. The mixture was then stirred with long handled wooden paddles and the tanks covers replaced, and the material was ready for sale free of tax. The abatement of tax in that case amounted to about $10,000. The mixture was 10 per cent. wood alcohol and 90 per cent. ethyl alcohol made from molasses, and was what is known as the ordinary methylating spirit used only for manufacturing purposes and used under bond. The completely denatured spirit is made by adding to the foregoing ⅜ of 1 per cent. of benzine.

"Aside from the special denaturants for particular industries in Germany, the denaturant for general use consists of 2 per cent. wood alcohol and ½ per cent of bone oil, which probably makes the net cost of the process less than in other countries where larger percentages are used.

"The thoroughness with which the German people go into a subject is illustrated in the case of the syndicate of alcohol manufacturers. I visited an institution maintained by this combination. It is known as the Institution of the Association of the United Alcohol Manufacturers of Germany, and is operated and maintained for educational purposes at the expense of the trust. At a rough estimate I should say that the whole plant must have cost at least a million dollars. It consisted of a model brewery, a complete corn and potato distillery, a starch manufacturing plant, extensive chemical laboratories, a vinegar making establishment, a beet sugar refinery and extensive grounds for the cultivation of the articles entering into the various manufacturing processes. A large corps of the best agricultural and chemical experts of Germany were in charge of the institution, and last year 525 students attended lectures.

"I asked one of the professors as to the correctness of the statement prevalent in America that the use of alcohol in the internal explosion engine resulted in the corrosion of the metal. He said at once that that was all nonsense, and immediately took me into a distillery where a large engine had been in continuous use with alcohol for the past six years. He admitted, however, that they had not fully overcome the difficulties with regard to the use of alcohol in the high speed automobile, but expressed entire confidence that it would only be a short time before equal success would be secured with the automobile engine that had already been secured with the alcohol engine for other purposes. He was exceedingly emphatic as to the absolute inaccuracy of the statements that corrosion of the metal resulted from its use."

Up-Staters Try Oiling the Roads.

At a recent meeting of the Automobile Club of Utica (N. Y.) resident engineer George A. Winslow, representing the State highway department, reported on the result of oiling the Utica-Paris road, which has but recently been accomplished. It was found that as a result of the application of some 6,000 gallons of oil on a five and a quarter mile stretch, complete satisfaction had been obtained, both for the users, and the residents of the vicinity. Considerable testimony was taken in order to find out in how great a measure the results had been crowned with success. It was found that for the three days immediately following the oiling, the road was not useable, but that after that it had been perfectly good. The further result of the experiment is being watched with considerable interest, as upon its success will depend the question of wider application of the process. The oil used consisted of a petroleum mixture, with a 30 per cent. base of asphalt.

It is said that a process of distilling petroleum from the shale of the coal measures has been developed in the British Isles, and that in this way a limited home production of motor fuel has become possible.

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CHICAGO TRIES CALLENDER

Hill-Climbing According to Mathematical Formula Affords Interesting Contrasts.

Chicago, or more exactly, the Chicago Automobile Trade Association and the Chicago Automobile Club, held its first automobile hill-climbing contest on Thursday of last week, 6th inst., and the contest was such a success that it will be made an annual affair. To anyone familiar with the topography of Chicago and the neighboring country, the idea of a hill-climbing competition sounds more like a joke than an actuality, but when the idea first suggested itself the promoters busied themselves and found two inclines, not long, it is true, but sufficiently so for the purpose, at Algonquin, Ill., about three hours by rail from the Windy City.

It is not often that Algonquin is honored by a visit from so many motorists at one time, so it little wonder that the whole town turned out to do honor to the Chicago visitors. Automobile parties began to arrive Wednesday morning and from then until the time of the contest, the little town was a scene of busy activity. More than 200 carloads of merry-makers and contestants had arrived from Chicago and as the Algonquins were not expecting such an invasion they were hard put to house all the visitors over night. Private houses were thrown open to the visitors and the mayor and his wife exerted every effort to make the town's guests comfortable. He even gave his employees in a condensed milk factory a half holiday on full pay, so they could watch the fray. The Algonquins are a hospitable people, and being to a great extent "wise," they did not overcharge their visitors.

The first hill-climbing contest was a dual affair. In the morning the forty-eight entries, embracing four classes, were sent up Perry hill, a steep incline 465 feet long with one bad turn, from a standing start. In the afternoon the climb was up Phillips' hill, nearly three-quarters of a mile long. The latter has not so great a rise as Perry hill and the cars were allowed a flying start. In determining the summaries the committee, assisted by a well-known mathematician from a Chicago university, used the Callender formula. The capacity of the cylinders in cubic inches was multiplied by the time in seconds that it required the cars to make the climb. This was divided by the weight of the car and the best result averaged in the two trials determined the winner.

On account of the pressing eagerness of the crowd, the morning trials came near ending disastrously. In one or two instances, while a car was on the hill, the crowd surged forward and fouled the wires of the electrical timing apparatus, which necessitated recalling the contestants and starting them over again. Naturally, the drivers who thus suffered claimed they made better times on the first trial than on the second. That was to be expected. The fastest time up the morning hill was made by Joseph Paul's Pierce which was registered at 34 seconds. In the afternoon it made 46⅖ seconds, tieing with a Stevens-Duryea for time honors, but in the formula classification Paul's car was beaten by 1/100 per cent. for the first prize. It was taken by another Pierce car driven by J. V. Lawrence. Lawrence climbed Perry hill in 46⅖ seconds and the longer slope in 59⅗ seconds, and his net total percentage was 9:08, Paul's being 9:09. Third place in this class, for cars costing over $2,500, was won by Joseph Carrington's Columbia car, with a percentage of 9:35.

A Queen, driven by B. B. Bradley, scored in the $1,750-$2,500 class, with a score of 9:94, although it did not make the fastest time. The best time in the morning was made by McDuffie's Stoddard-Dayton in 0:36⅕ and in the afternoon by Frank Nutt, in a Haynes, in 0:54⅗. Nutt got second in the final classification and McDuffie third while two Mitchell cars, driven respectively by Otis C. Friend and F. X. Zerbes, ran a close race for fourth honors.

On account of their larger size the Mitchell and Stoddard-Dayton cars fared badly in figuring the winners in the $1,000-$1,750 class. Both the Mitchell and Stoddard-Dayton made splendid performances but were given third and fourth places in the percentage basis. First place was won by S. R. Burnham's Jackson and Willet's Buick.

James Levy's Autocar carried off the honors in the under $1,000 event, although it beat the Willet's Buick by only .22 per cent. The Autocar had a final score of 8:53. The summary of all the events shows the time made by each car in both morning and afternoon climbs and its total scores.

Cracked the Chicago-New York Record.

In the same Franklin car that made the flight from ocean to ocean, C. S. Carris, M. S. Bates, James Daly and C. B. Harris, the crew that, with the addition of L. L. Whitman, lowered the cross-continent record to 15 days 2 hours 12 minutes, last week cracked the long-held Chicago to New York record of 58 hours 43 minutes. Carris-Bates-Daly-Harris brought down the figures to 56 hours 58 minutes. They left Chicago at 2 a. m., Tuesday 4th inst., and reached New York City on Thursday at 11:58 o'clock. The former record was made by Bert Holcombe, Lawrence Duffie and E. C. Bald on a Columbia car in October, 1904. Carris and his helpers probably would have made a deeper cut in the record but for two delays. The first occurred when they ran off the road and broke the cooling fan and the other when a dense fog necessitated a slow-down to six miles an hour for several miles between Little Falls and Schenectady.

CLASS A—NOT EXCEEDING $1,000 IN LIST.

Car and Driver—	Time— A. M.	Time— P. M.	Total pct.
Autocar, James Levy	:49	1:22⅗	8.53
Buick, W. C. Willetts	:52⅖	1:05⅗	8.75
Autocar, A. A. Belford	:51	1:29	9.12
Maxwell, G. W. Price	1:08⅕	1:21	11.41
Maxwell, G. E. Holmes	1:16⅕	1:30⅘	11.85
Mitchell, C. Bristow	1:18	1:37⅖	12.00
Cadillac, J. Farnsworth	1:46⅖	2:48	13.96
Ford, F. X. Mudd	:55⅖	1:18⅘	15.49
Holsman, Jackson	1:04⅖	1:46	15.85
Holsman, V. Bendix	1:23⅕	2:02⅕	18.91
CLASS B—OVER $1,000 AND NOT EXCEEDING $1,750.			
Jackson, S. R. Burnham	:37⅘	1:40⅕	8.74
Buick, W. C. Willetts	1:05	1:15	9.35
Stoddard-Dayton, J. McDuffee	:51	1:20⅖	10.41
Mitchell, F. C. Hemmerson	:45	1:12⅕	13.29
Reo, J. McInnes	:43⅘	1:09	13.40
CLASS C—OVER $1,750 AND NOT EXCEEDING $2,500.			
Queen, B. B. Bradley	:42⅖	1:04⅘	9.94
Haynes, F. N. Nutt	:38⅕	:54⅗	10.30
Stoddard-Dayton, McDuffee	:36⅕	:55⅕	11.67
Mitchell, Otis C. Friend	:47⅗	1:18	12.77
Mitchell, F. X. Zerbes	:48⅕	1:11⅖	13.44
Queen, C. A. Engelbeck	1:04⅘	1:23⅖	13.72
Wayne, F. Grenal	:53⅕	1:04⅕	15.99
Rambler, Joseph Gunther	:53	1:25	18.32
Rambler, T. B. Jeffery	:46	1:27⅕	29.80
CLASS D—OVER $2,500.			
Pierce-Arrow, J. V. Lawrence	:46⅘	:59⅗	9.08
Pierce-Arrow, Joseph Paul	:34	:46⅖	9.09
Columbia, J. Carrington	:55⅘	:65	9.35
Autocar, James Levy	:53	1:23⅖	10.26
Knox, George A. Crane	:46	:60	10.83
Thomas, C. A. Coey	:37⅘	:54⅖	11.87
Stearns, Dan Oeme	:39⅘	:59	12.16
Stevens-Duryea, F. P. Illsley	:39⅕	:46⅖	13.26
Pierce-Arrow, Martin Beck	:52⅕	1:13⅗	14.28
Apperson, N. H. Van Sicklen	:39⅗	1:45	17.81

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SMITH AS A SOLOMON

He Hands Down a Ruling Defining Power of New Jersey Constables.

Since the complicated Frelinghuysen automobile law went into effect in New Jersey there has been a great deal of misunderstanding as to its provisions, both on the part of motorists and of the so-termed "upholders of the law." One of the moot questions has been whether an ordinary policeman has the right to stop a car and demand of the driver to see his license to ascertain if any portion of the law has been broken. It was recently reported that State Commissioner J. B. R. Smith was authority for the statement that only the State inspectors have the right to arrest violators without a warrant, policemen and constables having no such authority. Commissioner Smith denies emphatically that he made such a statement and explains that what he did say was that only the State automobile inspectors have authority under the law to demand to see the certificate of automobilists now breaking some of the provisions of the State law. The State Commissioner this week gave his official interpretation of the law as regards this, in the following statement:

"The law gives all peace officers authority to arrest violators without warrant, and after the arrest of such offenders such officers have the right to demand of them that they show their licenses and certificates. Failure to produce such certificates makes the offender liable to a fine of $25.

"My understanding of the law is that only inspectors are entitled to stop motor vehicles for the mere purpose of examining the license. A policeman having stopped the automobile for any other violation of the law may properly ask for an inspection of the license, although, perhaps, no arrest could be made for refusal to show the license under such circumstances, but, of course, in such cases, the policeman would have the right to take the person before the magistrate because of the technical violation which occurred in his presence, and the magistrate could then insist upon an inspection of the license, and upon failing to receive it could fine the automobilist $25, according to the statute.

"It seems to me absolutely clear that the policemen are authorized to arrest for any violation. If a policeman knows that a person who is driving a car in his presence has not a license, there exists, unquestionably, a violation, but if the policeman does not know whether he has a license or not, he, of course, cannot tell whether he is violating the law in that respect, and I do not understand the law to give the police the right to arrest without warrant persons merely under suspicion, such authority having been given only to motor vehicle inspectors and to magistrates after a person has violated the law in some other respect.

"The way seems perfectly clear. If an automobilist has violated the law in the presence of any officer in this respect he may be arrested without warrant and taken before a magistrate by such officer. The magistrate may then demand an examination of the license."

Elevation of the Road Roller.

In New Hampshire there is at least one class of chauffeur not very likely to be troubled seriously by speed limit, no matter how restrictive they may be. These drivers are the pilots of traction engines, who must be licensed as chauffeurs under a recent decision of the Supreme Court of that State. The court held that the inclusion of traction engines as vehicles to be registered under the automobile law was assured by the fact that road rollers, so similar to traction engines in form and operation, were not expressly exempted. "The implication is irresistible," said the court, "that other machines aside from road rollers, passing over highways, carrying only the operators and materials used in their operation, are 'vehicles' within the meaning of the term as defined by the statute."

Another question raised in this case was whether a corporation owning a traction engine might receive the license required for its operation. The court held to the contrary, on the ground that the license must go to the individual who is actually to control the operation of the vehicle on the road. The corporation is to register the machine in its corporate name, but the individual operator must have the license. Traction engines are also registered as automobiles in Massachusetts and these ponderous vehicles may be seen on the fine roads of that State bearing the same kind of blue number plate that is attached to the touring cars.

Effects of a Guilty Conscience.

A guilty conscience led a member of the New Jersey Automobile and Motor Club into a ridiculous situation the other day. The particular member was touring through the country side, where the houses were a quarter of a mile apart, so he speeded his car up to the limit of the law and a trifle over, perhaps. Anyway, he was rolling along, when up the road an eighth of a mile distant loomed up a pedestrian. All of a sudden the pedestrian pulled out his timepiece rather officiously and the driver of the car jammed on the emergency brakes hard.

"Say," he exclaimed, "I wasn't going really very fast, and the country is awfully open here. Let me go this time, will you?"

"Let you go muchly," replied the pseudo inspector, "what do you take me for, a cop? I'm just getting back to my boarding house from church, and I wanted to see if I was going to miss the soup."

GLIDDEN'S OWN TOUR

It will Take Him to the Mexican Border Over a Steel Highway.

Having tried automobiling on railroad tracks and found it good, Charles J. Glidden, the Boston globe girdling motorist, is making preparations to pile up more of the same sort of mileage. So far he has driven 33,600 miles in thirty-five countries and has completed arrangements for a drive from Boston to the Mexican frontier at El Paso, Texas, and the Gulf of Mexico at Galveston, with a side trip to Little Rock, in Arkansas. He and Mrs. Glidden will leave Boston in November and drive to Chicago through Worcester, Springfield, Albany, Utica, Syracuse, Auburn, Buffalo, Erie, Cleveland and Toledo. From Chicago the car will travel over the tracks of the Rock Island railroad to Arkansas and Texas.

The drive from Chicago will be made under similar conditions to those that prevailed for the trip made by Mr. Glidden across the continent in 1904, when he travelled from Minneapolis to Vancouver, a distance of 1,803 miles. He will use the same machine that has carried him on his world's tour, except that the rubber tired wheels will be exchanged for flanged wheels, suitable to run upon the tracks. The car will be run under the instructions of a regular railway conductor, who will receive orders from the train despatchers regarding the progress of the machine. On the trip over the railroad Mr. Glidden will pass through the states of Illinois, Iowa, Missouri, Kansas and the Indian and Oklahoma Territories as well as Texas and Arkansas. If arrangements can be made, the drive on the railroad tracks will be extended to the city of Mexico, which would add about 1,000 miles to the railroad mileage. From Galveston the car will be shipped to Port Said, Egypt, as Mr. Glidden expects to use it in touring the countries surounding the Mediterranean Sea next winter. Mr. Glidden estimates that the trip from Boston to the Mexican border will add 1,480 miles to road mileage to his score and 3,380 miles of railroad travel as well. According to the present outlook it seems as if he intends to pass the remainder of his days globe trotting.

How He Tested the Warning.

"I saw the prize fool motorist at Pompton last week," said a Newark automobilist the other day. "He ripped his dust cloth to shreds, bent his shaft and scraped off a big lot of paint. He got all this trouble by doing the same sort of act that the man does who climbs a lamp post to see if the sign 'Wet Paint' is a joke or not. There is a bulletin on the road to Preakness that says the highway is impassible and dangerous to automobilists, and the idiot took it to see if it was true. It was."

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CUP COURSE THROWN OPEN

Racers Have Their First Try-outs—Keeler in a Spill—Referees Chosen.

From now until September 22nd, and from then until October 6th, the 29.71-mile circuit on Long Island over which the elimination race for the Vanderbilt cup race proper will be run will be the center of unusual activities. Yesterday, Wednesday, was the first day the racing cars were allowed on the course and it marked the beginning of serious training for aspirants who desire a place on the American team.



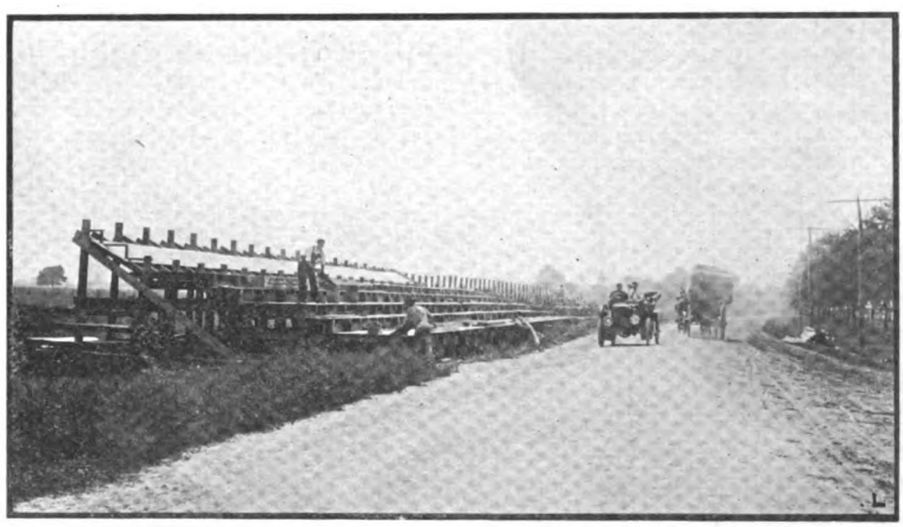
BELATED IMPROVEMENT OF THE JERICHO PIKE

Eight of the fifteen American team candidates are now on the course and seven of them were out on the road early yesterday morning. Herbert H. Lytle, 120 horsepower Pope-Toledo, was the first driver out, appearing on the course before 5 o'clock, so early, in fact, that the volunteer timers at Krug's corner, on the Jericho pike, were not prepared to snap watches on his first lap. Lytle had his car equipped with three powerful searchlights. Lytle drove four laps, the last three being timed at 37, 35 and 36 minutes. Lee Frayer, 110 horsepower Frayer-Miller, made one round in 39 minutes and Frank Lawnell, who is to take F. E. Muscovics place on one of the three Frayer-Miller cars, started but tire trouble caused his abandonment before the completion of the circuit. Joe Tracy, 90 horsepower Locomobile, made two laps and was timed at 40 minutes each time. Tracy threw a tire on his second round while going over the rough stone dressing on the Jericho turnpike, but neither car nor driver was injured. John W. Haynes, 50 horsepower Haynes and Ernest Keeler, 60 horsepower Olds, each made one round in 41 minutes. Walter Christie, 110 horsepower Christie, had ignition troubles and did not finish. On his second round Keeler and the Olds came to grief. When rounding the Lakeville turn the steering gear locked and the car struck a tree along the roadside a glancing blow, causing it to turn over and upset Keeler and Miller, his mecanicien. Both front wheels were smashed and the front axle sprung, but both occupants escaped injury. The car will be fixed up in a day or two.

The three Thomas cars, the Matheson, the Apperson, the Maxwell and the B. L. M. cars have yet to reach the course. The Apperson and the Matheson have been shipped from their respective factories and are expected daily and the three Thomas cars will arrive the first of next week. They were given a try-out in Buffalo on Tuesday and were found to be geared too high. When this is remedied they will be shipped to Long Island. About the B. L. M. little is known except from the reports of the very few who have been allowed to see it in Brooklyn, where it is being constructed. It is very much German, it is said, containing many Mercedes features. Its driver has been named and it is known that he wrecked his employer's 60 horsepower Mercedes touring car while practicing on the course a week ago. He is Henri Dolbeau, of Lyons, France, and very little of his ability as a driver is known.

Work of getting the course in readiness for the elimination race is progressing rapidly, but it seems that the work of oiling the course has been put off until rather late. It will, no doubt, be completed before the race, but the drivers will have slippery going during their trial spins. The grandstand, which will be at Westbury, where the one for the first Vanderbilt cup race was, is fairly under way, the work of building it having been started this week. It will be 750 feet long, and will accommodate twice as many persons as the one at Mineola last year. The stand will have 300 boxes, 100 in a row, and behind them 500 seats. The price of the boxes, which will seat five persons, has been fixed at $50 and for the grandstand seats $5. Orders have already been received for 80 boxes for the elimination race and 200 for the big race.

At a meeting of the racing board of the American Automobile Association on Monday, at which W. K. Vanderbilt, Jr., Jefferson De Mont Thompson, A. R. Pardington, A. G. Batchelder and F. K. Webb were present, it was decided that the owners of the American cars would draw for positions for starting in the elimination race on September 22, said drawing to take place on Saturday night, this week, at the Garden City Hotel. It was announced that the Long Island Railroad will place flagmen at the only grade crossing on the course to preclude the possibility of an accident from that source. W. K. Vanderbilt, Jr., was named to again act as referee, assisted by A. R. Pardington and Robert Lee Morrell, last year's chairman of the racing board. The course will be adequately patrolled and seventeen telephone stations will be dis-



ERECTING THE GRAND STAND AT WESTBURY

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tributed around the circuit, in addition to one at every five miles, which will be used as timing stations.

Of the foreign drivers who are to drive in the race proper, three already have arrived. They are George Heath, winner of the first cup race, who will pilot a Panhard, and Eliot F. Shepard and Foxhall Keene, two Americans, whose "patriotism" will make them struggle to give the cup to Germany. Heath, Keene and Shepard are Americans who have taken up residence in France. The Italian and French drivers and Camille Jenatzy ,the third member of the German team, are expected to sail from France this week and they may reach this country in time to witness the elimination race.

Mercedes Withdraws from Racing.

It has been definitely announced through C. L. Charley, its general agent, that hereafter the Mercedes Company will not enter cars in any racing event. The renouncement is conclusive and final, and in the same connection it is pointed out that two of the three cars originally nominated for the German representation in the Vanderbilt cup race, were entered by private parties and not by the company. It has even been announced that the third will be raced under private ownership.

The withdrawal of the Mercedes Company from all racing contests has been predicted frequently of late, but up to this time, nothing definite has been known. Incidentally, the fact is scathingly pointed out by foreign critics that during the last four years in which racing contests have been graced with Mercedes entries, but a single noteworthy victory has been achieved —that of Jenatzy, in winning the Bennet Cup of 1903, the performance of the cars in other events having been by no means illustrious.

Chicago's "Popular-Prices" Elect Officers.

At a meeting of the new Chicago Motor Club—the popular price club—the following officers were chosen: President, William H. Arthur; first vice-president, Joseph F. Gunther; second vice-president, J. W. Hayden; secretary-treasurer, George G. Greenburg; directors—Charles P. Root, G. G. Greenburg, J. W. Hayden, J. F. Gunther and W. H. Arthur. The dues have been fixed at $12 a year, with $10 initiation fee. The present officers will hold office until fifty members have been elected when there will be another election.

"Automobile Day" at State Fair.

Wednesday of last week was observed as "automobile day" at the Massachusetts State fair at Taunton, and several silver cups were awarded in competitive events. The Bay State Automobile Club had the most cars in line in the parade and won a $100 cup and the trophy for the best decorated car was awarded to C. H. Tappan, of Attleboro.

DID STUNTS IN KANSAS

It was a Free Show and a Great Crowd Looked on—The Results.

More than 3,000 persons attended the gymkana races of the Topeka (Kans.) Automobile Club, held at the State Fair Grounds, on Labor Day—a crowd as great as that which gathers at the annual horse racing fiesta—and it was not only the drivers of the participating cars who derived fun from the contests. The "stunt" races were free and as there was no other sport on the calendar for the afternoon a big holiday crowd journeyed out to the track.

The first event was a handkerchief race, ten being placed on the track at intervals of fifty feet, and the result proved that the race is not always to the swift. J. R. Johnson stood on the running board of his car and steered with one hand while he picked up the squares with the other. He made a clean run in 1:18. Ralph Montgomery was second in 1:23. Harry Southwick attempted an Oldfieldian exhibition and to pick up the handkerchief at the same time, but he missed two and had to go back for them. He finished in 1:37, getting five gallons of gasolene for a prize. Earl McDowell was fourth in 2:20 and Dr. H. E. Lyman won the booby prize—3 pounds of carbide—in 3:45.

One of the funniest events of the day was a barrel rolling contest, the contestants being required to roll an oil barrel down the home stretch ahead of their cars. In nearly every instance the barrel turned edgeways and gave the drivers no end of trouble. Dr. Lyman has frequently been called upon to resuscitate drowning persons and as he always rolls them on a barrel, the practice stood him in good stead, for he was the only contestant able to roll the barrel the required distance without upending it. Dr. Lyman was the big winner of the day, for besides winning the large car obstacle race and tieing with his brother in an apple cutting contest, he won the disabled event. In this the drivers lined their cars against the track rail and turned their backs while a committe disabled their cars by cutting battery wires, putting mud in the carburetters, disconnecting spark plugs and "other things." "Doc" Lyman's surgical experience again proved handy for he had his car patched up long before the other contestants.

Preceding the races a parade and review was held in which fifty cars cars took part and after the field events the club gave a dinner at the Elks club in honor of the visiting motorists. Following is the summary of the gymkana events, with the prizes each winner received in brackets:

Handkerchief race—Won by J. R. Johnson, 1:18 (pair of gloves); second, Ralph Montgomery, 1:23 (sponge); third, Harry Southwick, 1:37 (5 gallons of gasolene); fourth, Earl McDowell, 2:20 and booby; Dr. Harry E. Lyman (3 pounds of carbide).

Barrel race—Won by Dr. H. E. Lyman, 0:28 (cap); second, D. H. Martin, 0:50 (gloves); third, Frank Swearington, 1:12 (10 pounds carbide), and booby, Charles Trapp, 2:41 (screw driver).

Obstacle race—Large car class, won by Dr. H. E. Lyman, 3:13 (hat); second, Terry Stafford, 3:42 (gloves). Small car class, won by Earl McDowell, 2:24 (umbrella); second, B. G. Boird, 3:37 (pen); last, George W. Crane (pair baby shoes).

Apple cutting contest with broad swords —Tie for first place between Dr. H. E. Lyman and S. E. Lyman with 5 apples, 3 strings (table); second, Ralph Montgomery, (3 apples 5 strings (5 dry batteries); third, Harry Southwick, 2 apples 6 strings (cigars); last, D. E. Martin, 3 apples, 2 strings (bar soap).

Balancing contest—Won by S. E. Lyman, spilling 2⅛ inches water (ampere meter); second, Dr. C. Smith, 2 3-16 inches (knife); third, D. H. Martin, 2 5-16 inches (purse); fourth, Dr. Harry Lyman 2⅜ inches; last, Earl McDowell, spilled all (watermelon).

Disabled race—Won by Dr. Harry E. Lyman (slippers); second, D. H. Martin (dress shirt); third, Harry Southwick (box cigars); last, Earl McDowell (3 pounds of carbide).

Davis Did the Round Trip.

S. T. Davis, Jr., president of the Locomobile Co., who has just returned from a tour of the White Mountains, is priding himself upon having been the only tourist this summer to drive a fully loaded touring car up to the summit of Mt. Washington and down again. The last is added advisedly for inquiry showed that while a high-powered foreign car had made the ascent successfully earlier in the season, it had to be abandoned on the return trip while still two or three miles from the bottom owing to the brakes having worn out. And there it stayed for two days until the brakes could be renewed. Mr. Davis's Locomobile, with five up, made the trip in one hour and forty minutes, which would had been considerably reduced had water been taken on at the Halfway House. A renewal of the supply became necessary further up and it took half an hour to find it. The clouds were entered at the five-mile post which also reduced the speed considerably.

Nashvillians Choose Their Leaders.

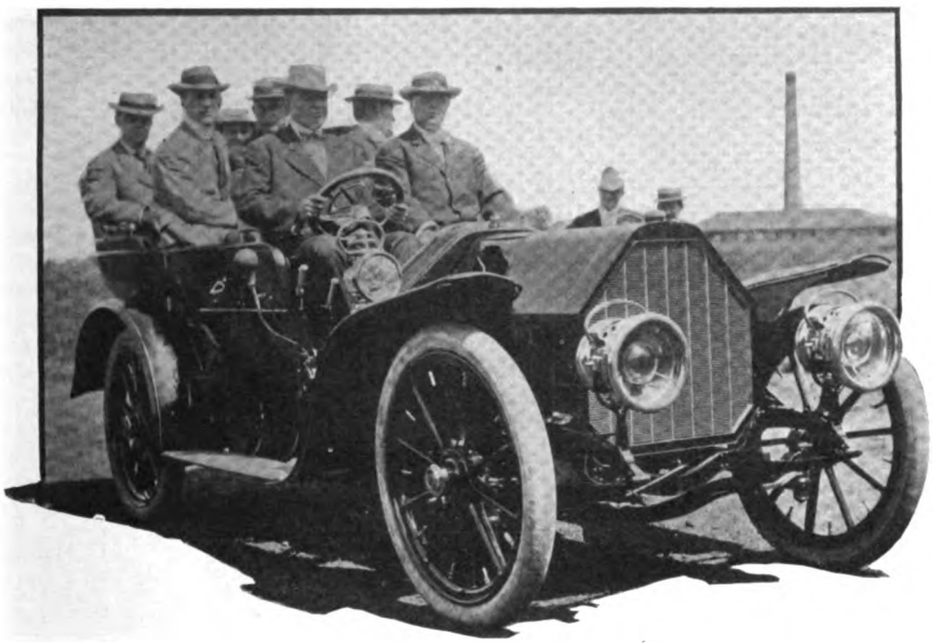
At the last meeting of the Nashville (Tenn.) Automobile Club the following officers were elected: President, Samuel G. Douglass; vice-president, F. O. Watts; secretary, J. C. Symmes; treasurer, W. P. Bruce; directors—Duncan R. Dorris, A. C. Andrews, T. J. Tyne, S. G. Douglass, Geo. M. Ingram, C. C. Coddington and J. C. Symmes.

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POPE-TOLEDO FOR 1907

Many Marked Improvements Have Been Made—Radical Changes in Engine Design.

Although it has been in the hands of the testing crew on the road since the 15th of last June, the details of the new 1907 50 horsepower Pope-Toledo, which is known as type XV, have just been made public. In the maker's preliminary announcement issued some time ago it was promised that the specifications of the new model would reveal a number of surprises and an examination of the first representatives of the new cars which have recently been received at the New York branch bears this out. The first thing to strike the eye is the fact that the shape of the radiator and bonnet which have long been a distinctive feature of the Pope-Toledo cars and a ready means of identifying them by those familiar with the outward appearance of the various makes of cars on the market, has been abandoned in favor of a more conventional type.

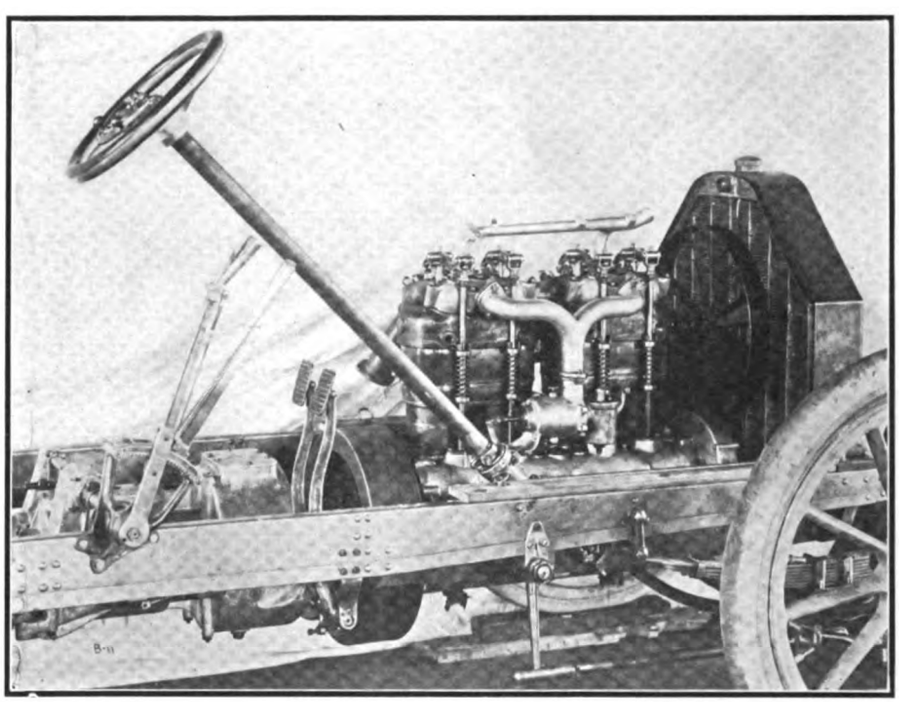


THE 1907 POPE-TOLEDO

Apart from this the outward appearance of the car remains practically unchanged. It is when the chassis is examined that the many innovations promised come to light. Foremost among these is the fact that after having employed independent cylinders, then semi-independent cylinders, that is, separate cylinder castings with twin heads as was the case in the 1906 model, the new motor has twin cylinder castings with heads integral, a copper water jacket surrounding each pair. The final abandonment of the automatically operated inlet valve and the placing of both inlet and exhaust in the cylinder heads in which position they are operated by an ingenious arrangement of walking beams and tappets that renders but one cam shaft and set of push rods necessary, are also features that stand out as radical changes in design from previous models.

The frame is of the usual channel section cold pressed from alloyed steel, the side members being of very deep section and having their edges beaded, while cross braces are employed at four points. The motor is so mounted that by removing the radiator it may readily be slipped forward and taken from the chassis without disturbing any other part of the mechanism. The crankshaft is of chrome nickel steel having a tensile strength of 225,000 pounds to the square inch and is supported at three points on ball bearings of unusually generous dimensions, made by the Deutsche Waffen Fabrik. In fact, the use of the latter has been general so that every bearing on the new car is now thus equipped. The thrust bearings are also of the ball type and likewise substantial in size. The timing gears on the motor are all encased and where a magneto was optional last year it has now been made a regular part of the equipment. It is of the high tension type and is gear driven.

While the contour of the radiator has been changed materially, it is still of the planetic or flat-channeled type that has always been an exclusive feature of the Pope cars. It has a capacity of 4½ gallons of water, circulation being insured by a centrifugal pump. The latter is operated by an independent shaft at the left or exhaust side of the motor and about on a level with the frame. On the inner end of the same shaft is the ignition timer which is driven by bevel gearing and which rises but a few inches vertically, thus bringing it in a very handy position. Surrounding the exhaust manifold at its center is a jacket designed to provide a supply of warm air which, however, may be diluted at will by means of an adjustable port, before it reaches the carburetter. This is also of an exclusive design permitting an extreme range of speed and at the same time being very economical. Another radical innovation is the adoption of a multiple disc clutch, this and the transmission being located directly behind the flywheel thus bringing them under the foot board in a very accessible location. The bevel gears



50 H. P. POPE-TOLEDO ENGINE

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and differential are placed in the same oil-tight case located on and forming part of the jack drive, ball bearings of large size being used throughout.

Final drive is by means of double side chains, both the sprockets and the chains being of chrome-nickel steel while they are so designed as to be noiseless in operation. The transmission shafts and pinions are also made entirely of chrome nickel steel while they are so designed as to be noiseless in operation. The gear changing mechanism is of the selective type giving four speeds ahead and reverse with the direct drive on the fourth. An increase has been made in the size of the running gear, 36-inch wheels now being employed, shod with 3½-inch tires front and 4½-inch tires on the drivers. The wheel base is 115 inches and the tread standard. Wood has been discarded as material for the body and sheet steel is employed in its place with a hood of aluminum. Three brakes are provided, all of which are of the double-acting type. The pedal brake is placed on the driving shaft while the other two are of the expanding type, constituting the emergency brake. They are of unusually generous proportions, and are placed on the rear wheels enclosed in mud and dust-proof cases.

In addition to theType XV., a high-powered runabout employing the same chassis will be marketed for 1907. Although the same features are incorporated in it throughout, it has a much shorter wheelbase and is considerably lighter. The motor is placed further back on the frame and the front wheels further forward while the steering wheel is given an extreme rake. Even the steering gear in both types is supported on ball bearings so that it is the claim of the makers that the connecting rods constitute the only moving part of the car that does not run on ball bearings.

Almost as Good as the Flag.

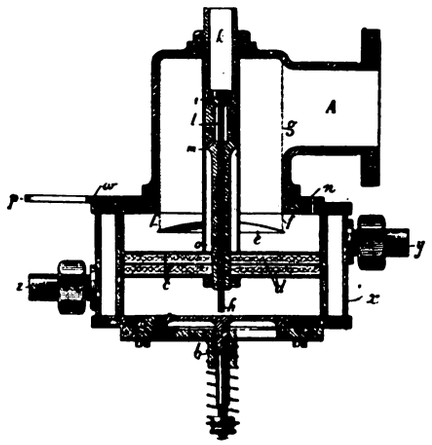
An American, taking interest and pride in the industrial pursuits and accomplishments of has native land, remarks: "A short while ago I was in Paris, where, of course, motor cars are as thick as bees. I was agreeably surprised to see approaching, a trim looking electric which, upon investigation, proved to be an American production, a Columbia brougham. I hadn't seen home for six months and I tell you it did me a world of good to see a Yankee car on French soil, and, as for appearances, it looked the part. Perhaps you will appreciate my feelings when you are in a foreign country and haven't seen home in a dog's age. It was almost as good as the sight of the American flag and every tourist abroad knows the feelings that creates."

If the carburetter air inlet is covered with a gauze screen, it should be kept free from oil and dirt at all times, as otherwise the quality of the mixture will be affected.

The Modernized Surface Carburetter.

In these days when the attention of the automobile designer is confined almost exclusively to the float-feed type of spray or jet carburetter, it is particularly interesting to note any exception to the rule, especially when that exception constitutes a reversion to the old and almost forgotten type of surface vaporizer, although developed in a thoroughly modern way. Such a device is in existence and is reputed to be wholly successful. It is a French product, known as the Gallia, and is manufactured by Michaud & Co., of Lyons and Paris.

Considering the sectional view here shown, the characteristic simplicity of the surface type is at once apparent. And, indeed, when it is taken into account that



essentially, the surface carburetter may best be described as an ordinary type of carburetter in which float chamber and jet have given way to a surface of absorbent material and a connection with the supply tank, the reason for this will be apparent. For the device consists of nothing more than a mixing valve and air-filter placed at the extremity of the regular intake pipe.

More in detail, the action is as follows: The air on its way to the cylinders is taken into the carburetter at the base, through a suction valve, actuated by the aspiration of the engine. It then passes through the fine meshes of the wire screens c, which are packed with an absorbent material d, and carry a certain measured amount of the fuel. Rising through the strainer more or less impregnated with the fuel vapor which it has displaced from the absorbent packing, it encounters the baffle plate e, which by deflecting it, causes it to become thoroughly homogeneous, and so delivers it to the mixing chamber proper above, through the fine gauze f. A second gauze g, at the entrance to the regular intake pipe, serves to carry out the admixture of the air and vapor, and completes the vaporization of any particles of entrained liquid by detaining them until evaporated.

The method of feeding the fuel is hardly more complicated, it being allowed to flow by gravity or under pressure into the standpipe k, where it is held in check by a small valve l, until released by the action of the incoming air. To this end, the valve stem h, is prolonged to a point within a short distance of the upper surface of the air inlet valve, where it is pushed upward by the lift of the latter during the intake stroke of the cycle, thereby allowing a small quantity of fuel to fall through the ports m and o, to the top of the filter or wick, there to be vaporized and caught up by the air.

For winter work, a heating jacket is built around the wick chamber, and is supplied with waste gas from the exhaust through the pipes y and z, in the usual way, or with hot water from the jackets. While the supplementary air intake is at n, under control of the valve plate w. In practice, it is claimed that this device responds to the motor with great nicety, and has proved to be wholly satisfactory as far as delivering a suitable working mixture is concerned.

Cleaning the Crank Case.

It is somewhat early to speak of what will take place "after the running of the Vanderbilt race," but one of the developments that is due, is the production of a removable rim designed for the use of the touring car. Hitherto it has been considered simply as a time saving expedient for the racing car, but it would be strange indeed if the same advantages that recommend it so highly in that field cannot be put to use in the more prosaic one of touring and there is little doubt that by next show time the removable rim in various forms will have become the subject of an interesting array of accessory exhibits.

About the Grease Cup.

There is quite a difference between the feel of a grease cup cover when it "sets" or screws down hard as far as the thread will permit it and when it is merely screwed down as far as it will go on its charge of lubricant; until the motorist has had sufficient experience to be able to differentiate between the two, it is a wise plan to remove the cap and see whether there is any grease in it, rather than screwing it down a few turns more just on a chance.

Rotting of the Radiator Hose.

A hose-pipe such as is employed to allow the required amount of relative movement between the engine and the radiator rots internally long before its exterior gives any indication that there is something amiss. Pinching it between the fingers is a certain test of its condition as if this has been going on for any length of time it will be quite soft, whereas hose that is still serviceable cannot be compressed with the hand alone.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding.

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FARMERS AS FRIENDS IN NEED

When Trouble Overtook This Tourist, they Proved their Worth—How they did so.

"Do you know, I've come to the conclusion that the rural agriculturist is not such a bad sort after all, once you get to know him," mused the Experienced Motorist, reminiscently. "It's simply a question of meeting him on his own ground," he continued, "and the man in the car who has never stepped down to shake hands with the farmer is like the man who has never travelled—he has an ingrained prejudice for all things foreign, and merely because he doesn't know them.

"I must confess I was in that class myself, but one or two experiences that I have had recently have made me almost a total convert to the farmer's cause.

"Oh, yes, I know that the farmer of the newspaper story who has his team already hitched and is lying in wait to mulct the motorist for towing him out of a sand pit specially prepared for the purpose, or something of that kind, is not altogether a myth, and that the cases I have run up against personally may have been exceptions, but I think on the whole, human nature in the rural districts is not so very different from that to be found in other parts and that the farmer is not quite so bad as he is painted.

"My first experience was nothing extraordinary, by any means, but as the good book says, 'it's not the size of the gift, but the spirit with which it is given,' or something to that effect when you render it into scriptural lingo, and that farmer certainly treated us right and without any thought of reward either for we simply could not force him to take any money.

"We were on a Sunday trip and for miles the road lay over the worst succession of hills that I have ever come across. I think for upwards of twenty miles we were not on a level stretch for half a mile at a time and the poor road made the climbing extra hard. That road was a continual succession of surprises and until the thing got monotonous we would wager as to what kind of a hill would be visible and how close it would be to the one we were then struggling up. For a large part of the time it was simply a matter of up one and down the other and it was fortunate for us that the down grades were as bad as the up, giving us an opportunity to shut off the motor altogether, using it as a brake and permitting it to cool a bit.

"We had been doing that for an hour or more when we struck a particularly long and steep rise which was unanimously given the distinction of being the prize bump that far, when I noticed the engine was laboring and seemed to be overheating. I was driving myself, and pulled up without a moment's delay, stopping the engine. The radiator was one of those that was provided with neither a vent in the cap nor an overflow pipe so that when we got the cap off with the aid of a pipe wrench; it was too hot to handle even with gauntlets, there being quite a blow-off of steam. After it had all blown away I took a look into the radiator and then shook hands with myself figuratively for having come to an immediate stop, for the entire upper part of it was baked dry—no sign of water.

"By trying the petcocks in turn we found that the jacket of the rear cylinder was considerably lower than the others owing to the grade on which the car was standing, was full to the top, and taking this as a level it was easy to figure that the forward cylinders contained scarcely any and the radiator could not be more than a third full. We took the collapsible bucket and started on a still hunt, the scent leading us to a farmer's well quite a distance away. That radiator has a capacity of several gallons and the bucket of about one, so we figured it would require considerable walking. We asked for an extra bucket and when we had set forth our plight for the farmer's benefit, he insisted on hitching up a horse and toteing us and the water down to the car. Only our repeated statements that a few buckets would be enough prevented him from taking a barrel full along.

"Once in trim again I made the chauffeur drive the horse back while the farmer rode with us and you never saw a more tickled man in your life. He was a little nervous at the start, but sat up straight and proud as a peacock when we drove into his barnyard before an admiring circle of hired men and relatives. He even gave us a bid to a chicken and ice cream dinner, but we had other plans and had to decline.

"Now that was what you call 'white' treatment, but a farmer that helped us out of a far worse predicament than that only a few weeks ago is entitled to a medal for hospitality. It was a hill climb in this instance, too, that stalled us, but the trouble was far more serious. The chauffeur was driving and about a hundred feet or so up the rise he attempted to put in the intermediate speed when there was a most terrific crash and clanking of gears. It sounded as if the entire transmission had been ripped out and scattered over the road and it was with considerable misgivings that we got out to make an inspection. It wasn't necessary to get under the car for oil and pieces of metal were dripping out of the gear box still.

"We were right in the middle of a narrow, sandy road and it didn't take more than one look to see that the trouble was of a nature not made good in a short time. I set out a-foot for help and the first farmhouse I struck gave me a good reception. I was invited into the stuffy, unaired parlor with the wax flowers under the glass globe on the mantel, to wait until the horses were hitched. I would have far rather wandered around the barnyard, but didn't want to give any offense. Within less than an hour we had the car right in the farmer's own workshop taking her down, and I tell you it was far better than some garages. We rigged up a tackle and hoisted the body off and then got to work. The accident happened while we were touring and we were a long way from home and a long way from the nearest railway station, so the matter of repairs looked like an expensive proposition.

"At first sight, the interior of the gear box was a sad wreck—as if half the pinions in it had been reduced to scrap, but an examination brought the number down to one, the intermediate end of the sliding member. You know how the straight type of sliding gear has a set of two pinions for the low and intermediate speeds on one piece which slides on a square shaft. Well, the intermediate or second speed pinion was junk. Either the piece of metal must have been poor material or it had become crystallized, because it went all to pieces, some of them an inch or two long and weighing several ounces, it was one of those that had been thrown off with such force that it went right through the aluminum gear case. I don't know how the chauffeur could have bungled the business of shifting so badly, but the shaft must have been going around pretty fast when he tried to make the change, to do such damage as that.

"But when we had things all down it did not look so bad as we feared would be the case. The second speed pinion was a total wreck and there was a hole almost an inch long by half an inch wide in the bottom of the gear case where the piece had gone through it, but the sliding member was otherwise intact, so that the remedy was simple. We cleared out the gear case thoroughly, plugged up the hole in the bottom and refilled it with axle grease donated by the farmer. The car was minus its second speed, that was all, and that did not present any very verious drawback. But it took us all the remainder of the afternoon to do that and the farmer wouldn't hear of us putting the job through and getting to the nearest town. We had to accept his hospitality, so that we had three meals with him; used his workshop for more than half a day, four of us stopped over night and probably took his mind from other things, but still he didn't wish to be paid for it. We finished putting things in shape at our leisure the next morning and insisted on making good for the trouble we had caused and he finally left it to us. I wish that generosity had not been curbed by other considerations, but compromised on a ten dollar bill and everyone was more than satisfied. I hope it will always be my luck to run across such farmers as those two, and until I meet some of the other kind I won't believe that they are as numerous as some motorists try to make out."

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TO KEEP MOTORS COOLER

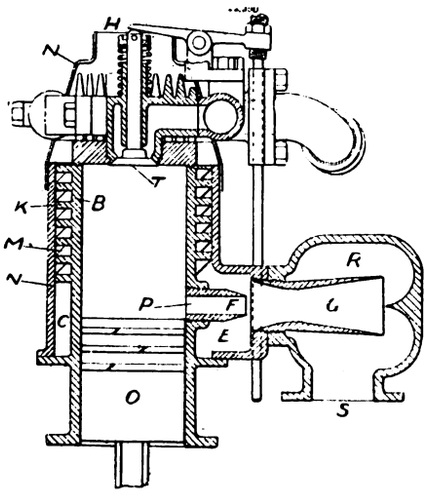
Details of the Kennedy Device Designed for the Purpose—How it Operates.

During the next year or two, it is likely that the greater portion of the new invention developed for the automobile motor will be directed toward the perfecting of the air-cooled type, and indeed, the trend in that direction is already apparent, many novel devices bearing directly upon it being constantly announced. And in this, since practice has already done about all it can to bring out the various methods of extending the radiating surface of the cylinder exteriors, the natural consequence is that attention is now being concentrated upon the methods of bringing the currents of cooling air into contact with those surfaces. To this end many ideas are being employed, not the least important among them being that in which the impulsive effort of the exhaust gasses is brought into play to cause an induced circulation about the cylinders, thereby saving the power which otherwise would be needful to drive a fan or blower. Several inventions contemplating this objective have already been brought to light, but none of them which appear to solve the problem so effectively as does an English scheme which has just been patented.

This is the Kennedy system, which comprises a jacketed cylinder having a spiral annular passage leading its full length, having at the top a suitable inlet opening, through which the valve mechanism is actuated, and at the bottom a chamber leading to a double conical jet which opens to the muffler. The double port method of exhausting is used, the relief port being uncovered by the piston at the end of its stroke, thereby allowing the waste gasses to pass out through a sharp nozzle into the chamber at the base of the jacket. The situation of this nozzle directly behind that which leads into the muffler serves to create a considerable suction which produces sufficient draught to effectively cool the cylinders.

As will be seen from the accompanying illustration, the space C between the cylinder wall B and the interior of the jacket wall N, is completely taken up by the spiral ribs K, forming the passage M, which is continuous from the inlet port at H to the outlet chamber E. The dropping of the piston O to its lowest point of travel uncovers the port P, which allows the exhaust gasses to pass out through the jet F into the larger tube G, at the same time, by virtue of their kinetic energy taking up the air immediately surrounding the jet F, and thereby creating a positive draught throughout the entire jacket system. At the same time, the chamber R, which leads to the exhaust, either directly or through a muffler, is shaped in such a way as to rob the gasses of their remaining increment of energy, leaving them practically inert. The valve T, at the top of the cylinder, acts as a main exhaust, taking care of the residual gasses during the process of the fourth stroke of the cycle.

Although this general principle has been utilized before, and referred to in these columns in connection with a description of inventions which made use of it, it may not be amiss at this time to point out that any system taking it up, effects a two-fold saving to the motor, one of power, and the other of noise, directly, and indirectly it may be, an additional saving of power to



a limited extent. That is to say, by getting rid of a fan, and utilizing the pressure of the exhaust gasses which commonly go to waste under a considerable pressure, an effective saving of power is accomplished while by cooling the gasses, and robbing them of a measure of their heat as must evidently be done, the purposes of the muffler are well served, and by the same means a reduction in the back pressure against which the exhaust must impinge when first released, is accomplished.

Why Driving Wheels "Toe in."

One of the first and most noticeable evidences of wear on the cheap car of light construction is the marked "toeing in" of the driving wheels, if such a term can be properly applied to wheels. A rear view of a car that has reached this condition, and it seems nothing unusual for some of them to do so before the end of their first season, is reminiscent of the "one hoss shay." Wear in the bevel drive and the pinions of the differential with the corresponding sag in the live axle permitted by the generous clearance allowed between it and the tube are responsible and the effect is soon very perceptible. The remedy should be applied without delay as unevenly worn tires are the least of the bad results that will follow, the axles and their fittings may become so badly sprung as to require replacement.

CAUSES OF OVERHEATING

Defective Design of the Piping a Prime Factor—Some of the Obvious Remedies.

Although, generally speaking, there is little cause for complaint on the score of overheating with the average motor, still there are many machines on the market and in use which, were the piping better arranged, would be found to run at a much lower normal temperature.

In laying out the system, it is essential in the first place, that the fewest possible number of sharp turns be employed, that there be no traps or points of low level where sediment could accumulate, and that the relative sizes of the feed and return pipes should be wisely chosen. In addition to this, of course, considerations relative to the location and method of connecting the pump as well as the rate of speed at which it is to be driven, with relation to the speed of the crank shaft, should be taken into account. And, lastly, provision should be made for expansion joints or suitable flexible connections to allow for the expansion of the pipes due to heating and cooling.

But beyond these purely general conditions, it is really essential that there should be some allowance for the expansion of the water due to its heated condition in the jackets. This effect, however slight it may be, produces a difference in the quantities flowing through the supply and return pipes, thereby creating a difference in velocity, if they are of the same internal diameter, thus, on account of the inertia of the liquid as well as the increased friction on the interior walls of the pipes, producing an increased load upon the pump and a greater strain upon all the connections, than would occur were the system maintained at a uniform temperature throughout. On this account, in theory, at least, the return pipe should be of larger bore than the supply, and in large motors, this is often found to be the case. In small powered machines, on the other hand, where the question of first cost and interchangeability come in for a greater amount of consideration, the piping is usually found to be of the same diameter throughout.

To the owner, this, of course, is an inevitable circumstance, but when it is found to exist, it becomes all the more important that the strictest care be taken to see that all passages are perfecly free of impediment at all times. And in such cases, it is particularly necessary that the flexible connections between the different lengths of pipe be watched with extreme vigilance to see that they do not "rough up" internally, forming partial dams across the bores of the pipes, and finally disintegrating with the effect of finally lodging particles of rubber or canvas at the nearest bend, to stop the circulation altogether, and usually without previous warning.

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THE TIMING OF THE ENGINE

Task That is a Good Test of One's Ability —How to go About it.

"Can you time an engine?" represents a query that is the bete noir of the candidate for a position who thinks himself fully competent to take care of all repairs and wishes to make others regard him in the same light.

In very many instances it is equivalent to requesting the applicant to translate a sentence from the Sanscrit—one is about as intelligible to him as the other. And in some cases the utter helplessness of the victim who but a moment before considered himself wise in his own conceit, coupled with his vain floundering to swim out of the predicament, are ludicrous in the extreme. No better test of an applicant's knowledge and ability to repair an automobile could be devised than to hand him the camshafts of the engine and tell him to time it correctly. And how very few are able to meet the requirements thus called for.

Yet this is one of the most important features of the internal combustion motor. If its valves and time of ignition, which constitute the essence of what is known as the "timing" of the engine are not correct it will either not function at all, or so poorly that its efficiency is very seriously impaired and damage results. For instance, if the exhaust valves do not open at the proper moment and do not remain open long enough the motor will overheat badly and preignition will result sooner or later, or before this stage is reached the incoming charge will be so badly diluted with the burnt gases that its power will be materially reduced. The same is true of the inlet valves; if they do not open and close at the proper moment the cylinder may either not receive any charge at all or such a large portion of it may be driven out of the cylinder again that the motor will not work at all, or so poorly as to be useless. Of course, this also applies to the ignition gear and what is true of one is likewise true of the relation that each must bear to the other.

It would not appear at first sight as if this constituted knowledge of an order so abstruse or involved as to be beyond the ken of the average motorist, but it will be found upon investigation that there are remarkably few who are sufficiently conversant with the motor to enable them to perform the operation nor to know how it should be done. Nevertheless, there are a number of reasons or conditions that render it advisable that the owner or driver should be conversant with some method that will enable him to regulate the operation of the various parts of the motor governing the functions included in the expression "timing the engine." Of course, the excuse usually given is that this is work of a class far beyond the average motorist that takes care of his own car and judging from the small number to whom it is not a mystery, this is evidently the way in which the matter is universally regarded. But as in everything else in the way of repairs, the bulk of the bill represents the time spent in taking down the engine to get at the affected part and reassembling it.

This is something seldom beyond the ability of the motorist who knows the ins and outs of the mechanism of his own car sufficiently well to be able to take care of it, were he likewise able to make the necessary adjustments when the engine is thus dismantled. In large repair shops the work of taking down and putting together again is entrusted to the apprentices or second-grade machinists while the matter of making the adjustments is done by the skilled help. The amateur repairer must combine both these functions, and the ability to do so is not only its own reward pecuniarily, but brings with it that satisfaction of a job well done which is lacking where it is given over to the professional, not to mention the time the car is out of use.

Take, for instance, the type of engine that may well be denominated standard; that is, with mechanically operated valves, oppositely disposed. In assembling the high-grade motor, whether of this type or any other, the practice of marking the pinions on their faces with symbols indicating their proper positions is one usually followed in the up-to-date factories. But without a knowledge of how to utilize this information their import will be meaningless to anyone essaying to correct some default that has occurred in the timing through one of the pinions working loose. Suppose, for a moment, that the two to one pinion on the main shaft of the motor that drives both cam-shafts, thus controlling the entire system of timing, has worked loose and moved far enough forward to be out of mesh. If this and the pinions on either side of it are without marks to indicate their proper relative positions, or the motorist does not know how to take advantage of the marks where they do exist, he will find himself hopelessly at sea, for with the defection of this controlling key the timing of the valves and ignition is hopelessly upset.

In the case of the multicylinder engine, it is only necessary to consider one of the cylinders, as in accordance with the most approved practice the cams and shaft are ground from the same piece of steel so that it is impossible for them to alter their relative positions about its circumference. Even were this not the case, there is little possibility of the cams themselves having moved so that the proper timing of the one cylinder will also give that of the remainder without further trouble. As the valves of the first cylinder are most readily watched from the end of the motor where the timing gear is located that one may be selected for convenience.

Having removed the valve caps of that cylinder so that the movement of the valves can be seen with greater certainty than the lifting of the tappets would indicate, there is an opportunity to apply the worker's theoretical knowledge of the internal combustion motor. He must be conversant with this in order to appreciate the rules laid down by current practice for the proper time of opening and closing the valves. For instance, experience has shown that the inlet valve when mechanically operated as in the case under discussion, should begin to open the moment the exhaust valve closes—that is, when it has finally settled into its seat and is no longer supported by the tappet. Both these points should concur when the piston reaches the extreme limit of its stroke, although different designers have different theories of their own in this respect, some claiming that higher efficiency is obtainable where the inlet valve is set to open slightly in advance of the closing of the exhaust.

If the movement of the piston can not be seen clearly enough through the valve port, this may be ascertained with the aid of a piece of wire and if the cylinder is fitted with a compression tap in the center of the head, this will facilitate gaining the desired information in question as the wire may be dropped through it. This having been accomplished the large pinion attached to the inlet cam shaft should be rotated to the left, that is, in a direction counter to that of the crankshaft itself, unless the engine be one of the type in which an intermediate pinion is employed between the crank and cam shafts in order to correct the reversal of the direction of rotation. The latter, however, is rare. The movement should be continued until the inlet valve of the first cylinder is about to lift which will be when the cam has lifted the plunger or tappet until its upper face is in close contact and pressing against the bottom of the valve stem. This pressure will be perceptible to the hand just prior to the beginning of the lift.

The same method of procedure must be adopted in the case of the exhaust. It should be turned in the same direction until the inlet valve of the first cylinder has just closed, and then all that remains to be done is to slide the small pinion along the crank shaft until it meshes with the two larger wheels. Whatever be the means of making the small pinion fast, such as a taper pin or key, the pinion should be turned so that the slot or tapered hole corresponds with that in the shaft before attempting to mesh the gears. And the pin or key should be driven home, avoiding unnecessary hammering on the end of the shaft so as not to bend it, before the engine is turned over. The timing of the ignition may easily be tested at the same time by taking out the spark plug of the first cylinder, and, after

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having placed the ignition lever so that it is about one-third of the distance from the point of maximum retardation, noting just when the spark occurs at the plug.

It should take place when the piston is at the extreme upward point of its travel, this being readily ascertainable by the means already indicated. Setting the ignition lever on the steering wheel as mentioned will give about the proper proportion of advancement and retardation so that taking for granted that the instructions regarding the setting of the cam shaft pinions with relation to that of the crank shaft, have been closely followed, the timing of both the valves and the ignition—in other words, that of the entire engine should be found to be correct.

Simplifying the Cleaning of Cars.

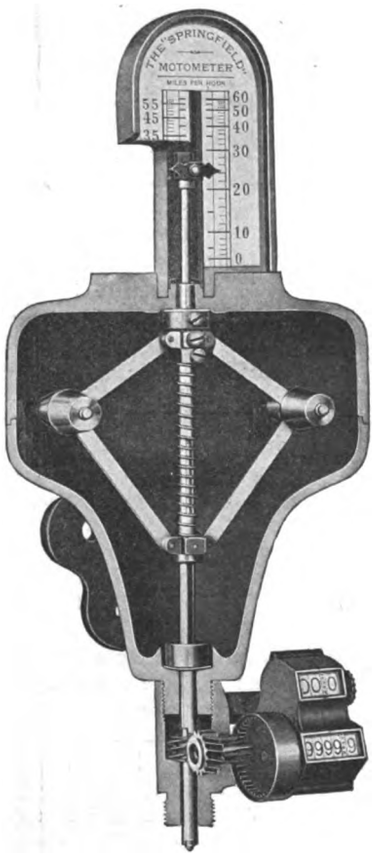
A woman would not put on silks to do the family washing nor would a man don his best clothes in order to crawl under his car to see what was wrong with it on a muddy road. Then why should an automobile be rigged out in all the finery that is possible to put on it when it is intended to be out in all weathers, is a question that is apropos as well as timely. Why should an automobile be burdened with ornamentation that is not alone of little use, but that is the cause of a great deal of additional work and that soon becomes shabby-looking despite it. And this seems to be true of the present finish of the automobile as a whole.

Its vast expanse of mirror-like varnish is but the target for mud, pebbles and dust and its many parts of polished brass are the despair of the cleaner. There is a noticeable tendency to eliminate features that are productive of such an amount of extra work and it is said that more than one American manufacturer's cars for next year will show the result. As an instance of this, may be mentioned the makers of the Aerocar, who are inaugurating this practice in connection with their 1907 touring runabout.

In place of the usual polished varnish which not only scratches so readily, but which is also affected by sea air and damp weather, a dull, hard oil finish will be employed. This will withstand the ravages of wear and tear far better and can easily be kept clean by an inexperienced washer as rubbing with an oily rag will quickly restore its original appearance. The same idea has been extended to the brass parts, many of which are painted over. The steering post, the hinges, lamp brackets and the brass on the hood are all coated, leaving nothing but the steering wheel and a small amount of brass beading to keep clean and polished, not to mention the lamps, of course, the chief beauty of which consists of their high finish. This gives the car a finish and parts which can be kept looking presentable despite continued use under all weather conditions, with a minimum of labor for cleaning.

Speed Indicator Becomes Motometer.

Under a changed name, yet otherwise unaltered in practical efficiency, and greatly improved in certain technical details, the Springfield speed indicator, enters upon its second year of service as the Springfield Motometer. In presenting it, the R. H. Smith Manufacturing Company, Springfield, Mass., is perpetuating one of the simplest and hence, most satisfactory devices which claim attention in this line. The accuracy and sensitiveness of the governor principle,



which is employed in its lowest terms, combined with the small number of working parts, and their enduring features owing to the straightforward nature of the mechanism, make it at once readily responsive in action and lasting in service.

As heretofore, the mechanism consists of a simple fly-ball governor mounted on the vertical driving spindle, and drawn toward its lowest position by a helical spring which surrounds the spindle. The outward swing of the weights as the speed increases from zero, compresses the spring by raising the two links which connect them with a sliding-block against which it presses, at the same time raising a rod which is telescoped within the spindle and connected with the lower block. To the end of this rod is affixed a pointer which registers over a vertical scale above, the amount of lift, and hence, the rate of speed of the car, which is proportional to it.

At the base of the casing enclosing the governor is a cyclometer, worm driven from the spindle, which registers the distance traveled on total and trip dials, the latter being of the set-back type. The entire mechanism is enclosed in a dust-proof case and all working joints are lubricated. This coupled with the fact that the nature of the mechanism makes possible the use of hardened bearings, insures long life.

The connections at the forward wheel of the car are also well cared for in the matter of lubrication, a grease cup being fitted to the driving spindle which contains sufficient lubricant for 25,000 miles, the only attention required being the adjustment of the feed screw once in about 500 miles of running. At the bracket which mounts the driven pinion and the end of the flexible shaft, is a relieving device which normally holds the pinion in full mesh with the master driving gear, yet permits it to slide out of mesh in the event of any obstruction falling into the teeth. This feature, as well as the universal nature of the fitting, making it readily adaptible to any car, is in itself a recommendation of more than passing value.

Some Statistics from Cleveland.

Cleveland evidently is a city that contains a lot of idle reckoners and fanciful calculators. Some time ago a "genius" put forth the statement that were all the air contained in the city's automobile tires concentrated and let out at once it would cause a gale sufficient to wreck every boat on Lake Erie and do half a dozen other direful things. Now the proposition is presented that if all of Cleveland's street cars on the one side and all that city's automobiles on the other should engage in a tug of war, the motor vehicles would "win in a pull." To back up his statement, the "eminent scientist" has compiled these figures: Automobiles—number, 3,000; average horsepower, 30; total horsepower, 90,000. Street cars—number, 680; average horsepower, 100; total horsepower, 68,000. Horses—number, 6,000; average horsepower, 1; total horsepower, 6,000.

Manifold Uses of a Car.

While the versatility of the automobile is not always apparent, perhaps because it is seldom in great requisition, still there are instances where it has been developed to a remarkable degree. Thus, for example, a South African correspondent writes:

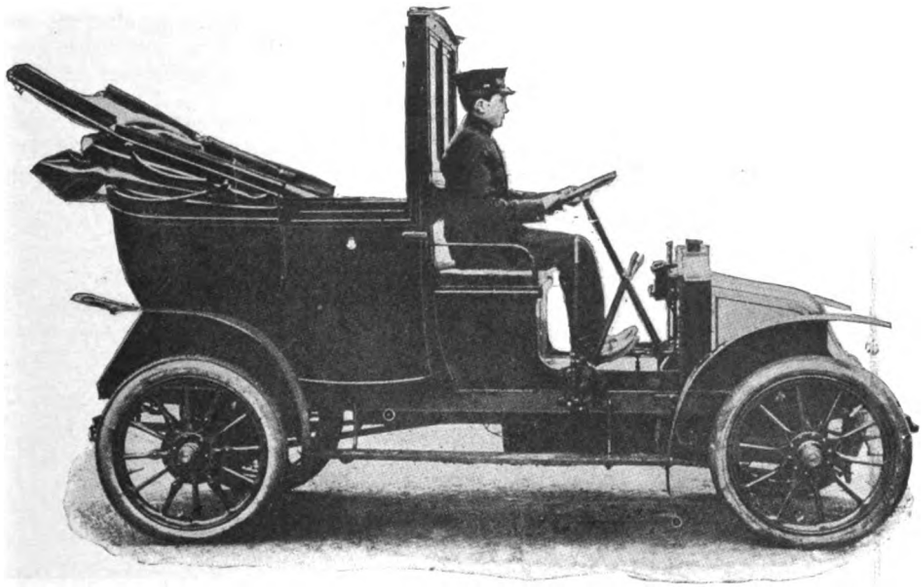
"I know of one doctor up country who has a five horsepower Oldsmobile, with which he visits his patients; when it is not occupied in doing this, he puts a bit of belting over the flywheel and runs a forage cutter with it; when there is not sufficient wind, he turns it on to his windmill to draw water from his well, and in the evening the belt goes on to the dynamo and supplies the house with electric light; all of which is surely sufficient proof of the usefulness of the car and its adaptibility to other purposes besides motoring."

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GASOLENE CAB DEVELOPMENT

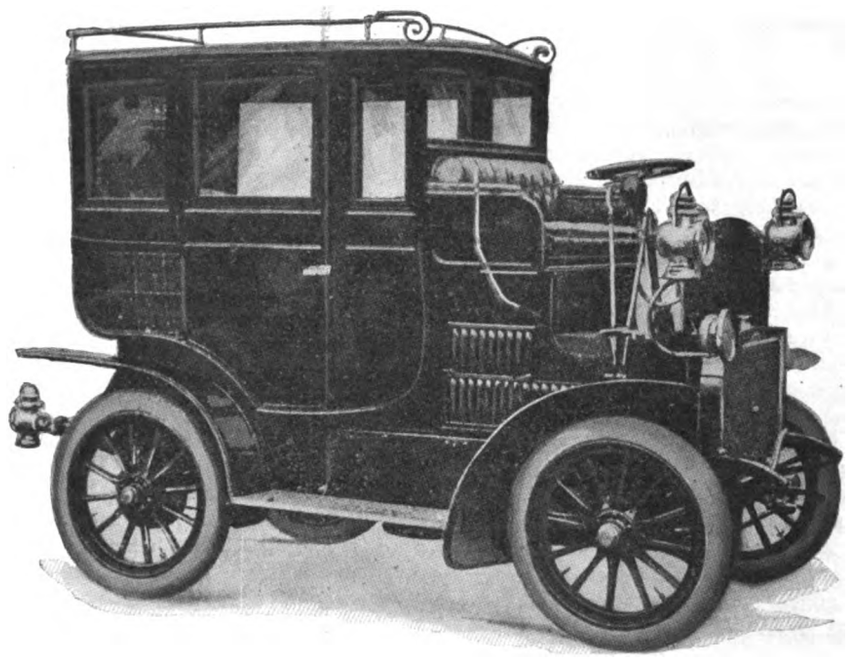
Marked Progress in Evidence in Europe—Types That are Most Popular.

Motor cabs are now a well recognized institution both here and abroad. In this country, their application is confined almost wholly to the electric, while a small number of private conveyances are propelled by internal combustion motors. In England and Europe, however, the gasolene driven machine has come to the front practically to the exclusion of the electric for general hack work.



In Paris, the progress made has been remarkable, both from the standpoint of design and certainly in point of the number of machines in requisition. Recently the newspapers gave forth the startling announcement that 1,200 new vehicles had been ordered by companies operating cabs in the gay city, which when running by the side of the 300 now in successful use, will bring the total to an impressive figure. Of the new cabs, the Renault works are said to be at present working on an order for 500 which are soon to be ready, while orders for 300 more are said to be waiting for attention at the Bayard-Clement factory. A new company, just formed, will require another 500 it is said. These vehicles are all of low power, most of them below fourteen horse, and fitted with two-cylinder motors. The types are universally the same, the town car of last season's development, and the bodies generally speaking, are of commonplace form, though well suited to the work.

In England, on the other hand, the motor cab has been used spasmodically for a number of years, several types of vehicle of unwieldly aspect having been tried out in service and found wanting, while others have fared better, a large number now being in use. The progress there has been sufficient to warrant the construction of a vehicle especially adapted to the work, and one of the much talked of developments of the day is the new cab which has just been turned out by the powerful Argyle Company of Glasgow. This machine has the "chassis de ville," of the French metropolis, with the engine placed low down under the driver's box, which, by the same token, loses nothing through a slightly added elevation. The mechanism and methods of control are precisely like those of the ordinary touring car modified only by the altered relation due to the raised and forward positon of the driver, and the body lines are those to which the eye has long been accustomed.



HOW SPAIN IS "COMING ON"

Young King's Partiality for Motor Cars Bears Fruit—Extent of the Industry.

Under enthusiastic royal patronage, motoring in Spain is fast assuming proportions of considerable importance. Numbers of cars are being imported, mostly from other European countries, and one factory of respectable size and capacity has begun to produce reputable machines. A few American runabouts are in use, and a comparatively small number of German cars, the great majority of the motors in use are, however, of French origin. Refering to the state of the industry there, Consul-General Ridgley, of Barcelona, says:

"There is only one automobile manufactory in Spain, but that is a good one and is rapidly taking possession of the Spanish market. It is the Compania Hispano-Suiza, of Barcelona, and its factory is in Barcelona. The chief engineer and the man who founded the company is a Swiss. Less than three years ago he succeeded in getting the necessary capital for establishing the business, and the enterprise was successful from the beginning. Last year, besides spending large sums in enlarging the works and in all sorts of betterments, the company paid its stockholders 11 per cent. net dividend. This Spanish company is undoubtedly making first-class automobiles. Until this year it turned out only 14 to 18 horsepower and 20 to 24 horsepower machines. This year, however, it has begun to make 40 horsepower cars, and has delivered five or six of these machines within the past month. The secret of its quick success perhaps lies in the fact that it builds its machines with an eye to their

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use on the bad roads of Spain. Certainly in no well-known country of Europe are the roads generally so bad as they are in Spain.

"A few of the French makers," he goes on to say, "have produced machines having good road clearance, especially for the Spanish trade, and in consequence have secured a firm and lasting hold here. As yet, however, there is a very general demand for machines of high class of from 20 to 40 horsepower, and it is clear that this demand will grow steadily. Whether or not cheap machines of 8 or 10 horsepower will ever be popular is problematical.

"Until the Hispano-Suiza began to manufacture here the duty was about $190 on a four-seated car, but the new company, claiming protection as an infant industry, succeeded in getting the rate nearly doubled in the tariff which went into effect on the first day of last month," says Consul Ridgley.

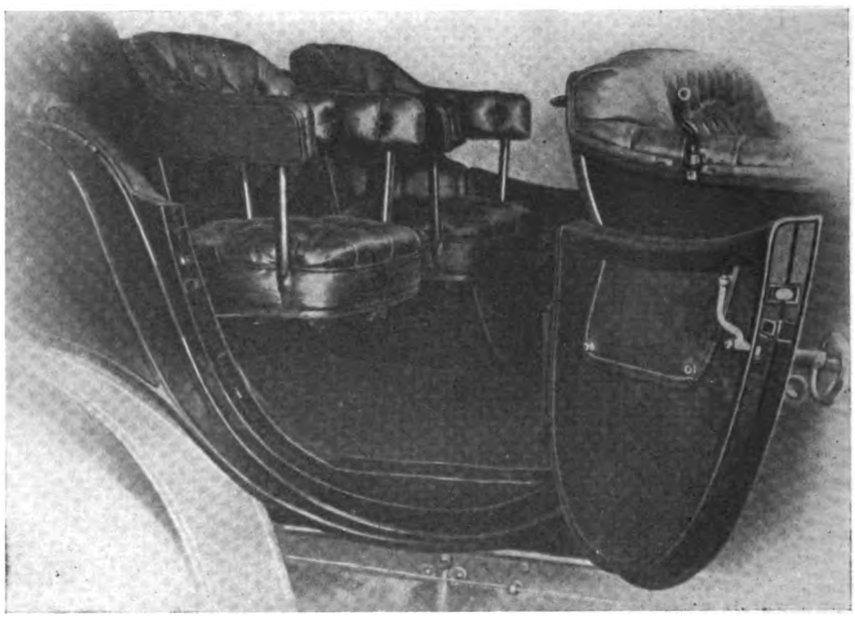
"The customs duties, it should be stated, are assessed on the weight. The maximum rates are as follows: Any open auto car of any sort would pay 1 peseta (19.3 cents) per kilogram (2.20 pounds) and in addition 200 pesetas ($38.60) on the coach work. Thus a car weighing, say, 2,200 pounds (1,000 kilos) would pay, if an open car, 1,000 pesetas ($193) on the weight and $39 on the body, or $232 in all; if it were a closed car it would pay 320 pesetas (24 cents) the kilo instead of 1 peseta, the price for the coach work being always the same, i. e., 200 pesetas ($39) for open cars, and 320 pesetas $62) for closed cars. The average French touring car weighs about 3,960 pounds (1,800 kilos), and I presume our American touring cars are of tbout the same weight. Thus, at 1.20 pesetas (24 cents) per kilo it is not difficult to estimate what the duty would be. The minimum rates of duty to which imports from the United States are also entitled are 0.80 peseta per kilo on cars weighing up to 1,000 kilos, and 1 peseta per kilo on cars weighing above 1,000 kilos. The duty on the coach work is the same for both the maximum and the minimum tariff."

Where Tape May Cause Trouble.

Tape is invaluable as a protection for the terminals of the various leads in the ignition system, but there are times when its role of benefactor is reversed and it becomes a source of unwitting annoyance. The copper connections universally employed to finish the ends of the cables are quite soft and flexible when new, but rapidly crystallize under the influence of vibration and the break, which follows sooner or later, is just as apt to occur in the part covered by the insulating tape as elsewhere. This leaves the appearance of the defective part unchanged so that its soundness goes unchallenged. The only way to solve the puzzle is to tug at the cable ends and unwrap any that appear to be loose.

Increasing the Seating Capacity.

With the constantly increasing length of the wheelbase of the modern touring car that has now reached proportions which would have absolutely astounded the designer of but a few years ago, there has come a demand for additional seating capacity in the correspondingly lengthened tonneau and the problem presented to the body maker has been how to provide this without interfering with the usual seating arrangements or unduly hampering the passengers' ingress or exit from this part of the car. The solution has naturally taken the form of folding seats in the majority of instances and had the wheelbase not been increased to even greater limits probably this would have become permanently accepted as the best method of providing extra seating capacity.



WHITE'S SEATING ARRANGEMENT

This has not been the case, for despite what was considered as a tremendous jump in the length of the cars a few years ago, the front and the rear wheels have been getting further and further apart and the tonneaux correspondingly more roomy, so that the body designer has been given greater latitude in this respect. The result in a number of cases has been the adoption of revolving chairs, whether on vertical supports or on brackets as is the case where the latest models of the White steamers are concerned. The method of support as well as the placing of the seats in the latter are pictured by the accompanying photograph. From this it will be noticeable that while the side entrance is not blocked in any way, there is still ample room left between the seats in the form of an aisle leading to the rear cross seat. This increases the seating capacity of the car as a whole to seven persons who may all be comfortably accommodated under ordinary conditions, while for touring the extra seats may readily be removed, thus permitting of the storage of some of the equipment found necessary on a long trip, in the tonneau without crowding its occupants.

Inspection of Water Supply.

While it is seldom that soft water is not procurable for filling the radiator, so that there is little to be feared on the score of internal incrustation of the tubes, it is just as well to take pains to see that the water used is perfectly clean. And by this is meant more that large pieces of matter which can readily be extracted with the hand should receive attention than those impurities only removable with a strainer. The latter may usually be removed without trouble by using the drain cocks in the lowest part of the circulation system, but larger pieces are apt to give trouble regardless of how powerful a pump the engine may be equipped with.

Wear That Reduces Power.

In motors which have been run for a considerable length of time, the wear of the cams, lifters and ends of the valve stems may have been sufficient to reduce the effective lift of the valves somewhat. The result, of course, will be a loss in power, which, coming on gradually, however, is likely to be overlooked, or to be attributed to other causes. The inlet side is less likely to be affected in this way, owing to the fact that the valves are not opened under pressure. In any event, the remedy is either a complete renewal of the parts which are found to be much worn, or else a building on of patches, which besides being most difficult to accomplish, is not wholly satisfactory, though it is an expedient worth knowing.

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ABOUT MALLEABLE CASTINGS

Reaumer's Discovery and the Developments Since—The Making of Them.

While the term malleable casting, is one not infrequently heard in the wise intercourse of engineers, it is probable that outside the confines of the engineering fraternity, but little is known of the metal in that form, other than that it is not so brittle as the ordinary cast iron, and that it is produced by an ordinary casting process supplemented by a later treatment which serves practically to anneal it. And, indeed, it may be said that even among metallurgists, knowledge of the precise nature of the chemical changes which are involved in the transformation of the brittle and hard casting into the softer and more tenacious malleable product, is somewhat vague. The properties of the metal are, however, well known, which is quite enough in itself for all practical purposes.

In 1722 that distinguished investigator, Reaumer, announced the basic principles of the process which has since become so common in the mechanical arts. Briefly, it was stated that if an ordinary casting too hard for treatment were to be exposed for several days to a continuous heat, meantime being embedded in rolling mill scale or red hematite ore, its nature would be entirely changed, and it would be rendered not simply softer, but at the same time measurably tougher. Reaumer discovered that this change was due to an alteration in the carbon ingredient in the metal, the treatment resulting in depriving the metal of a certain amount of that which had been left in it at the time of casting. Later students of the subject have arrived at the conclusion that the amount of carbon is not changed, but that in some way its condition is altered chemically. But, however that may be, the exact nature of the change is not of material interest to the simply practical mechanic.

As commercially produced at this time, the metal from which malleable castings are to be made is not melted down in an ordinary cupola, as is done with common cast iron, but is treated in a reverberatory furnace, somewhat in the way that pig iron is puddled in the production of wrought iron. That is to say, the metal for the charge, which may consist of scrap castings, steel rails, bar iron or pig, is piled up on a hearth which is separated from the fire by a dam or fire wall, over which the flames play under the influence of the blast, being diverted onto the surface of the melting metal by sundry arches of fire-brick placed above. In this way the metal is heated without being mingled with the coke and slag of the fire, and consequently undergoes a different treatment from that which occurs in the common cupola.

After the charge has been melted down, the slag is skimmed from the top, and it is then "rabbled" or stirred violently to insure a thorough mixture of the ingredients and to reduce the percentage of silicon. After the lapse of what is judged to be a sufficient length of time, sample castings are poured in test bars, which are quickly cooled and broken, the appearance of the fractured surfaces revealing to the practiced eye the state of the metal. When the proper time has come the hearth is tapped at the bottom and the metal drawn off to be poured into molds like ordinary cast iron.

The resulting castings are exactly similar to ordinary castings except that the different constituency due to the effect of the melting proces on the hearth renders them much more hard and brittle. In fact, at this stage, the metal is practically worthless on this account, and unless handled with care may break or crack before it has been annealed, and thus become a dead loss. It is taken to the annealing furnaces as quickly as possible, and there arranged in a series of specially constructed flasks, somewhat similar to those used in the original casting process, and made ready for the second firing. To this end they are packed away with a filling of rolling mill scale, or red hematite ore, flask being laid on flask until a pile five feet or so in height has been made, which, in many instances, is loaded on a truck, which rolls on its track directly into the furnace, where it is left during the five or six days, which are required in extreme cases to complete the annealing process.

The annealing furnace, which also, is reverbratory in its action, consists of a large chamber in which the castings are placed, from which lead ducts to carry away the gases and which is underlaid with passages which take the flames from the furnace up through and around the contents, giving a uniform temperature throughout all parts. The temperature is raised to perhaps 1,800 degrees, F., and maintained unvaryingly, the action within being watched through peep-holes at the same time, until it is judged that the anealing has become complete. After a prolonged period of cooling, the sealing in the doors is then removed and the castings are taken from the flasks and placed in rattlers or pickling baths, like ordinary castings. This treatment serves to remove the scale and sand, as well as small roughnesses on the surface, and renders them fit for use.

Malleable castings vary in tensile strength from 30,000 to 40,000 pounds per square inch, according to the standard figures of a few years ago. Recent improvements have, it is said, increased this to a range of from 40,000 to 50,000 pounds per square inch, with an elongation of 60 per cent and a 3 per cent. reduction in area. Ordinary cast iron varies in tensile strength from 20,000 to 30,000 pounds per square inch. In compressive strength, however, the plain cast metal has the advantage, and in many other ways it is superior for general uses.

Generally speaking, parts which have been malleablized, are not such as require much machining, and therefore, the malleable metal is most commonly applied to articles which need not be made with extreme accuracy. By drop forging them, however, they may be shaped to a certain extent, the deflections due to the prolonged heat treatment being removed in this way. With the rapid strides in the improvement of the process itself which are being made, however, the uses to which it is applicable are gradually being extended.

Markus Appears on the Scene.

Although the credit for the invention of the motor car driven by an internal combustion motor is usually accorded to Daimler, the subject is one that is perennially verdant and it seldom occurs that any great length of time intervenes between the cropping up of new claims. But now one comes forward that is apparently well substantiated and it is moreover, one that antedates both Daimler and Selden by quite a few years. Seigfried Markus was the inventor and his "Viertakt Benzinmotor" is said to have been exhibited at the World's Fair held in Vienna in 1873. A description of it is to be found in the huge catalogue of the exhibits printed by order of the crown.

The car, which made its first journey through the streets of Vienna with Markus at the helm and several natives of the same city, who are still living, as passengers, is yet extant and is to be seen at the Lohner carriage works. At the time of the death of Markus, which occurred several years ago, the Vienna press published full details and drawings of his invention, and that its fame has not been purely local is evidenced by the fact that in 1905 American engineers visited Vienna especially for the purpose of consulting the catalogue of the exhibition of 1873 and to obtain drawings from the Lohner firm of the car and its motor.

Improvement of Ignition Cable.

Few things have been improved to such an extent as the ignition cable for the high tension side of the system. It appears to be about as near perfection in the way of insulation and durability that human ingenuity can devise, and this coupled with the extra protection given it, makes a breakdown of that part of the system very rare. So much so that on a properly wired car this is the last thing that a driver thinks of looking at when "something unknown" has caused the car to come to a stop against the will of those in control.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50 cents. The Motor World Publishing Co., 154 Nassau Street, New York.

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The Week's Patents.

829,545. Sparking Plug. Charles E. Ross, Crafton, Pa. Filed July 9, 1904. Serial No. 215,869.

Claim.—In an electric sparking mechanism, a hollow conducting-casing having an annular groove in the internal periphery thereof, a core of non-conducting material engaging said casing, an electrode-rod passing through said core and a detachable cover of stamped spring metal adapted to protect the exposed end of said core and having integral legs adapted to be sprung into and engage said groove, said cover forming one of the electrodes of said mechanism, substantially as and for the purpose set forth.

829,549. Hydaulic Clutch. George Sparks, Feltham, England, assignor to Sparks-Boothby Hydraulic Clutch, Limited, London, England. Filed Jan. 3, 1906. Serial No. 294,470.

Claim.—1. In a hydraulic clutch, the combination of a casing filled with liquid and forming one clutch member, another member in the casing and forming therewith an annular chamber when the members are engaged, projections on the members fitting into and dividing the chamber and means for relatively moving the members axially into and out of engagement.

829,599. Cooling Device for Explosion-Motors. Fred Patee, Indianapolis, Ind. Filed Sept. 4, 1902. Serial No. 122,095.

Claim.—1. In combination, a multiple-cylinder engine, said cylinders having perforated radiating flanges, a fly-wheel on the crank-shaft, a balance-wheel, cooling-fans supported at the head of each cylinder, driving connections between the fly-wheel and balance-wheel, and driving connections between the balance-wheel and fans.

829,625. Radiator. Louis H. Brinkman, West Hartford, Conn., assignor to Whitlock Coil Pipe Company, West Hartford, Conn., a corporation of Connecticut. Filed Nov. 18, 1904. Serial No. 233,263.

Claim.—1. In a radiator, the combination with upper and lower chambers, of a series of coiled pipes communicating at their ends with said chambers, and having coils of adjacent pipes overlapping each other and a metal strip inserted longitudinally through said overlapping coils.

829,643. Storage Battery. George A. Ford, Cleveland, Ohio, assignor to Harriet S. Ford, Cleveland, Ohio. Filed Dec. 22, 1905. Serial No. 292,892.

Claim.—1. A storage battery comprising a number of superposed battery units each consisting of a tray made of infrangible absorbent material having upturned marginal edges and a bottom which inclines from a central point upward to said marginal edges, a reinforcing-frame having a bottom which is inclined to correspond with the inclination of the bottom of the tray, and is made of narrow bars, and an upturned marginal flange adapted to embrace and engage with the flange of the tray, and an electrode in said tray.

829,827. Power-Transmitting Mechanism, Edward H. Anderson, Scenectady, N. Y., assignor to General Electric Company, a corporation of New York. Filed Apr. 9, 1904. Serial No. 202,376.

Claim.—1. In combination, a prime mover, a driven member, transmission mechanism adapted to transmit the power of the prime mover to the driven member comprising two dynamo-electric machines mechanically connected, means for varying at will the relative torque per ampere of said machines, and means for varying at will the relative connections of armature and field of one of said machines.

829,940. Carburetter. Wilbur D. Lanard, Clementon, N. J. Filed Aug. 27, 1904. Serial No. 222,429.

Claim.—1. A chamber having a cap upon which are formed apertured projections, an apertured projection upon the side of the chamber, a flanged nozzle provided with a conical projection and a cylindrical extension surrounding said conical projection and provided with a plurality of apertures near the base of said extension, said nozzle being insertable within the bottom of said chamber.

829,996. Spring-Tire. Ernest G. Offeldt, Nyack, N. Y. Filed Dec. 9, 1905. Serial No. 291,119.

Claih.—A tire comprising an inner ring, an outer ring, annular flexible strips fixed at their respective edges to said rings, and a series of springs enclosed by said rings and strips, each of said springs diminishing in thickness from one end to the other and secured at their thicker ends to the inner ring, each spring pressing at a point rearward of its free end against the inner face of the outer ring and pressing at its free extremity against the adjacent spring at a point rearward of the bearing of the latter against the outer ring.

830,005. Vulcanizer. Louis E. Rice, Cedar Falls, Iowa. Filed March 8, 1906. Serial No. 304,985.

Claim.—1. In a vulcanizer the combination with a hollow body open at its ends and having an opening in one wall, the lower end opening being adapted to receive a heater; of an iron detachably mounted in the opening in the wall, and means hinged to the upper end of the body for closing the upper opening to confine heat within the body.

830,083. Vehicle-Wheel. Anders H. Kopperud, Byron, Cal. Filed July 10, 1905. Serial No. 268,978.

Claim.—1. A resilient wheel having the spokes thereof extended to form a yieldable tread-surface and provided with traction-lugs.

830,099. Hydrocarbon-Engine for Motor Vehicles. James W. Packard, Warren, O., assignor to Packard Motor Car Company, Warren, Ohio, a corporation of West Virginia. Filed June 29, 1903. Serial No. 163,589.

Claim.—1. In a hydrocarbon-engine, the combination with two parallel cylinders formed separately, a casing for each cylinder partially surrounding the same, the two casings being joined to form a continuous water-jacket about the two cylinders, of a crank-case formed of two parts suitably connected together, the parts of the crank-case being joined on a plane passing through the axes of the two cylinders, and said cylinders and crank-case having telescoping portions.

830,100. Antifriction-Bearing. John Post, Philadelphia, Pa., assignor to General Traction Company, Washington, D. C., a corporation of the District of Columbia. Filed Jan 12, 1906. Serial No. 295,760.

Claim.—1. An antifriction-bearing comprising the combination of a wheel having a recess therein, bearings mounted in said recess, rings interposed between said bearings and the surface of the recess, and means operated exteriorly of the wheel to adjust said rings, substantially as shown and described.

830,144. Explosive-Engine. Hiram A. Frantz, Cherryville, Pa. Filed Feb. 21, 1905. Serial No. 246,652.

Claim.—1. In a gas-engine a charging mechanism comprising separate reservoirs for gasolene and kerosene, a common pump with feed-pipes to and from the same, cut-off means for said reservoirs, separate inlets to the engine-cylinder arranged in communication with the common feed-pipe thereto, and cut-off means for said inlets, substantially as set forth.

830,159. Variable-Speed gear. Wilhelm E. Marx, Leipsic, Germany. Filed Sept. 17, 1904. Serial No. 224,887.

Claim.—1. A variable-speed transmission gear comprising a pair of stepped cone-pulleys coaxially arranged and having their bases opposite one another, a carriage movable parallel to said pulleys, and having a pair of swinging arms thereon, idler-pulleys on said arms, and a belt extending over said idler-pulleys and said cone-pulleys and arranged to direct said idler-pulleys into alinement with the particular cone-pulley opposite which they are located by the tension of the belt.

830,219. Water-Cooler. Joseph M. Gaar, and John C. F. Laser, Indianapolis, Ind. Filed Dec. 2, 1904. Serial No. 235,273.

Claim.—1. In a cooling apparatus, two or more chambers, and a plurality of tubes forming communications between said chambers, said tubes being contracted in one diameter, to form passages of greater length in cross-section than width and said tubes being additionally contracted on the same diameters at their discharge ends.

830,267. Vehicle-Tire. William Westney, Scotland, Conn. Filed Nov. 30, 1905. Serial No. 288,689.

Claim.—1. A vehicle-tire having an outer peripheral covering composed of an endless coiled spring, a core formed of rope passing through said spring, and a rubber cushion lying between said rope and said spring.

830,270. Gas-Engine. Reuben Willetts, Butler, Pa. Filed May 25, 1905. Serial No. 262,195.

Claim.—1. In a gas-engine of the type described, the combination of cylinders, a partitioned head mounted between said cylinders, electric-spark igniters mounted in said head upon each side of the partition of said head, water-jackets surrounding said cylinders, said cylinders having air-inlet ports formed therein, said cylinders having gas-inlet ports formed therein, said cylinders having gas-inlet ports formed therein, spring-pressed air-valves carried by said cylinders, pistons mounted in said cylinders and exteriorly connected together and adapted to alternately operate, means carried by the connecting parts of said piston to alternately actuate said igniters substantially as described.

830,348. Winding-Lever for Motor-Vehicles. Jefferson D. Metcalfe, Darrington, Miss., assignor of one-half to George W. Mathis, Darrington, Miss. Filed Sept. 3, 1904. Serial No. 223,221.

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Claim.—A winding-lever for spring-motors comprising the lever having an angular bend at its lower end to provide a longitudinal slot and a right-angular dog, said lever being also provided with a bearing which extends outwardly from one side thereof, a rotatable shaft provided on one end with a fixed ratchet, a support having collars at its lower end which are movably mounted on the shaft at opposite sides of said ratchet, a slide on the support serving to have vertical movement in the longitudinal slot, the upper end of the support having a vertical slot therein, said end being arranged between the lever and its bearing, and a pin passing through the slot and secured to the lever and its bearing, substantially as specified.

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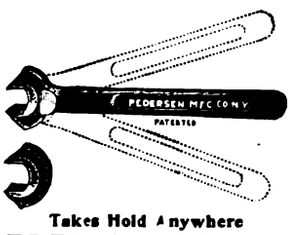
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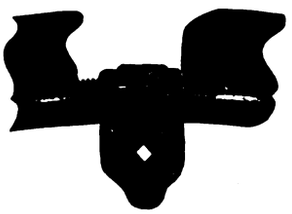
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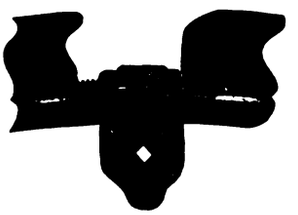


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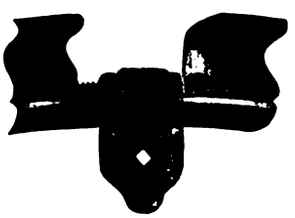
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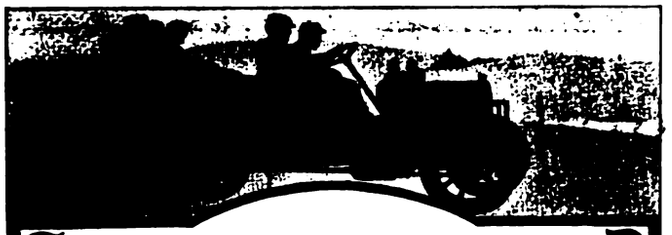
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The Hammer that will stand the racket of all-around usage on your car or in your garage.

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FOR 1907

WILL BE THE STANDARD FOR HIGH-GRADE CARS

Do not waste time and money on experiments.

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In addition to cellular coolers, we make **disc radiators** of several types, **hoods, exhaust** and **inlet pipes** and **headers, muffler** pipes and bent and brazed work of every description for automobiles.

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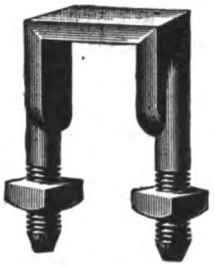
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We are prepared to estimate on your 1906 Forgings.

Satisfaction Guaranteed.



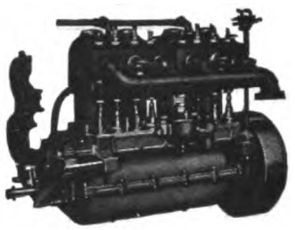
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Type "O" 45 H. P.

is the only one to consider when you want the highest grade, lightest and most durable and efficient motor for your car. **Cut shows our 45 H P, Motor.** Also four other sizes. Sold separately or in combination with our "Continental" power plant, including Clutch and Transmission.

Our new Muskegon plant, in addition to our Chicago shops, insures prompt deliveries.

Don't order before getting our catalogue and prices.

Continental Motor Manufacturing Co.
MUSKEGON, MICH.
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ONE QUALITY—THE BEST.

OUR LEADERS:
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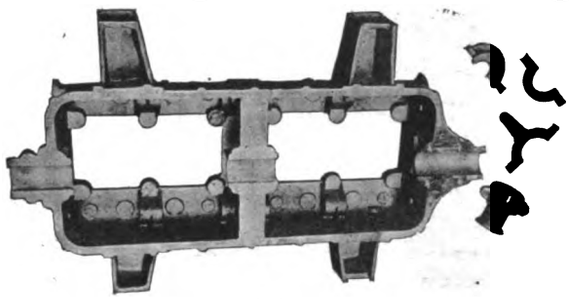
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THE NORTHERN TWO-CYLINDER TOURING-RUNABOUT

Embodies all that any automobile ought to, and much more than most automobiles do.

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DETROIT, MICH.
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Because thoroughly constructed on correct mechanical principles. Absolutely accurate; all speeds; pointer always steady. Combines trip and season odometer. Price fair to us, fair to you. With complete fittings for any car:

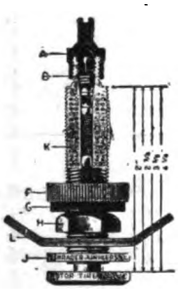
50 Mile Instrument, $45.00
60 Mile Instrument, $50.00
Either size without Odometer, $10.00 less.

Ask for catalogue and booklet.
We can now make prompt deliveries.

The R. H. Smith Mfg. Co.
Patentees and Manufacturers
Springfield, Mass.
Established 1865. Incorporated 1883.

SCHRADER UNIVERSAL VALVE.

Trademark Registered.



SIMPLE AND ABSOLUTELY AIR TIGHT.

MOTOR TIRE VALVES, as shown in cut, are made in four lengths as shown. Cut is exactly half size of the 2 in. valve.

SUPPLIED TO THE TRADE BY ALL TIRE MANUFACTURERS.

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Traverses Sections of the South which are growing faster than any other part of the United States.

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THE A-Z CO. **RADIATORS** THE A-Z CO.

HOODS, TANKS, MUD GUARDS, MUD APRONS, METAL DASHES, MUFFLERS, METAL HAMPERS, SPROCKET STEPS AND COVERS, ALUMINUM BRAZING, REPAIRING OF ALL KINDS IN OUR LINE.

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Office and Works: 527-529 W. 36th St., NEW YORK CITY.

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THE **London Tops**

Style
Durability
Quality



LONDON AUTO SUPPLY CO., 1233 Michigan Ave., Chicago

STANDARD ROLLER BEARING COMPANY
PHILADELPHIA, PA.

Manufacturers of Steel, Brass and Bronze Balls, Ball Bearings, Roller Bearings and Automobile Axles

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THE F. B. STEARNS CO.,
CLEVELAND, OHIO, U. S. A.

Consecutively Numbered Name Plates

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We make them in either embossed or depressed figures.

THE CHANDLER CO., Inc.,
SPRINGFIELD, MASS.



A. R. MOSLER
163 W. 29th St.
NEW YORK

"SPIT-FIRE" Plugs actually SPIT FIRE, while others spark only. Ask your dealer or write us for New Booklet of 1906 Mosler Ignition Outfits.



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The simplest device for inflating tires with car standing or in motion. Send for illustrated booklet.

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Outnumber, Outwear and are Stronger than Others.

Write for Catalogue.

Diamond Chain & Mfg. Co.,
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Automobile Material and Supplies.

We manufacture the
Climax Motor Lamps, Climax Auto Cells.
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J. M. QUINBY & CO.
EST. 1834.
Carriage Builders, NEWARK, N. J.

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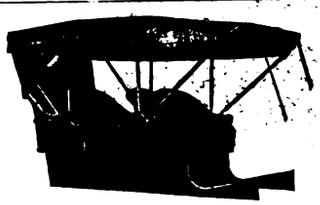
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(Pat. 1895)
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366 Birnie Avenue, Springfield, Mass.



Classed as an accessory the shock absorber really comes closer to being a necessity than any other known motor car appliance.



The Diezemann Shock Absorber

is by far the most practical of all absorbers. It is provided with a self-lubricating system that definitely places it above the plane of all other frictional retarding devices. It does not require regulation when once properly adjusted. Satisfactorily used on the racer, touring car or commercial vehicle.

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Diezemann Shock Absorber Co.
1307 Hudson Street, HOBOKEN, N. J.

THE NEW HOTCHKISS
Built like a gun by gunmakers.

THE DE LEON
A French Car at American Price.

ARCHER & CO.
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30 H. P. 5 Passenger, $2,750.
45 H. P. 7 Passenger, $3,500.
CATALOGUE MAILED ON REQUEST.
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The One CARBURETER That Gives
COMPENSATION WITHOUT COMPLICATION
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BALDWIN CHAINS AND SPROCKETS

The Baldwin Chain Company
— MAKE —
Automobile Chains, Sprockets, Spur and Bevel Gears.
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COLD PRESSED WORK

In Steel, Brass and Aluminum.

We make a specialty of difficult drawing in heavy steel and in stampings to replace malleable iron and brass castings.

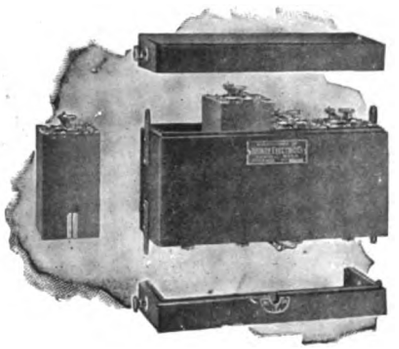
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Heinze Motor Car Coils

WILL INCREASE THE POWER OF YOUR ENGINE FROM 10 TO 15%.

Are the most thoroughly constructed coils on the market producing the hottest spark and having the most rapid vibrator.



ARE GUARANTEED AGAINST BURNING OUT.

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Factory, LOWELL, MASS.

Uphill or Downhill

COLUMBIA IGNITOR DRY CELLS

You will get there and you will get back if you use COLUMBIA IGNITOR DRY CELLS

NATIONAL CARBON COMPANY

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GRAY AND DAVIS

"Makers of Smart Automobile Lamps."

Be Sure Your Car is Equipped with Them.

AMESBURY, MASS.



Roadside Troubles One little nut dropping from a bolt will put your car, self and party out of the road, out of patience and out of words suitable to express your feelings. Why take the chance of being on the outs when **COLUMBIA LOCK NUTS** will hold tight and insure of your bringing all of your car home? Send us a two-cent stamp, **SIZE** and **THREAD**, and we will send you a nut to put on that bolt you had to get out and tighten yesterday.

COLUMBIA NUT & BOLT CO., Inc., Bridgeport, Conn.

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HOODS EASTERN FACTORY, NEWARK, N. J. TANKS

THE LAMBERT Famous Friction-Drive Car.

Models and Styles to Suit the Purchaser.

PLEASURE CARS, RUNABOUTS and TOURING CARS, and Lambert Patented Friction Drive COMMERCIAL TRUCKS. Prices $900 to $3000. Write for particulars.

☞Some attractive agency propositions not yet closed.

THE BUCKEYE MFG. CO., Anderson, Ind., U. S. A.

Members A. M. C. M. A.

BUY A WAYNE and save all arguments

1,000 to 2,500 Miles

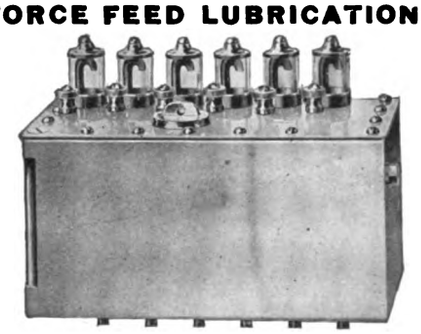
Muller Porous Plate Igniter Storage Batteries

Will never miss at high speed. Write for price list.

The Muller Porous Plate Accumulator Co.

205 West Forty-first St., New York, N. Y.

FORCE FEED LUBRICATION.



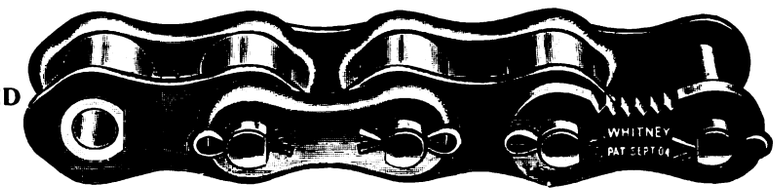
Constant Sight Feed. No Liquids.

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McCORD & CO., 1407-80 Old Colony Bldg., CHICAGO

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"Whitney" Chains in the GLIDDEN Contest were used more extensively than all others combined and made their customary records for efficiency.

PATENTED  PATENTED

Springfield Mass., August 10, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—In reply to yours of the 9th, we are pleased to advise you that we used Whitney chairs on both our pleasure and commercial vehicles in the Glidden Tour, both of which finished with perfect scores, having no trouble whatever with chains, and without the slightest care or attention the same finished the trip in perfect order.

Yours very truly, KNOX AUTOMOBILE COMPANY.

New York Office, August 22, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—I beg to acknowledge receipt of your favor of the 21st inst., with refefence to the Whitney chains which were used on the Mark 47 Columbia car that I drove in the Glidden Tour. Replying, would say that we experienced no difficulty or trouble at all with the chains and the test was severe indeed.

Yours very truly, ELECTRIC VEHICLE COMPANY.

Buffalo, N. Y., September 4, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—The two Thomas cars which competed in the Glidden Tour, one finishing with a perfect score and the other with two points against it on account of a technicality, were both equipped with Whitney chairs. These chains were entirely satisfactory and we shall continue to use them for 1907 as we have in the past.

Very truly yours, E. R. THOMAS MOTOR CO.

Cleveland, Ohio, August 15, 1906.

WHITNEY MFG. CO.,

Gentlemen—Replying to yours of the 13th, beg to say that neither of our two cars entered in the Glidden Tour experienced the slightest chain trouble, nor did our two 1907 cars which we drove from Cleveland to Bretton Woods in four days, and later won from all comers in all three events in the Crawford Notch Hill Climb. We beg to say that we are running the same chains on these cars at present.

Very truly yours, THE F. B. STEARNS CO.

Lansing, Mich., August 15, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—Referring to your letter of August 13th, wish to state that we used Whitney Roller Chain on the REO car in the Glidden Contest and it proved very satisfactory, having no trouble whatever from that source.

Very truly yours, REO MOTOR CAR COMPANY.

Hagerstown, Md., August 15, 1906.

WHITNEY MFG. CO.,

Gentlemen—Answering your inquiry of the 13th as to whether we experienced any trouble with the chains on our Model "C" touring car, which was sent through the Glidden Tour, take pleasure in stating that the chains gave excellent service and that no trouble whatever was experienced throughout the run.

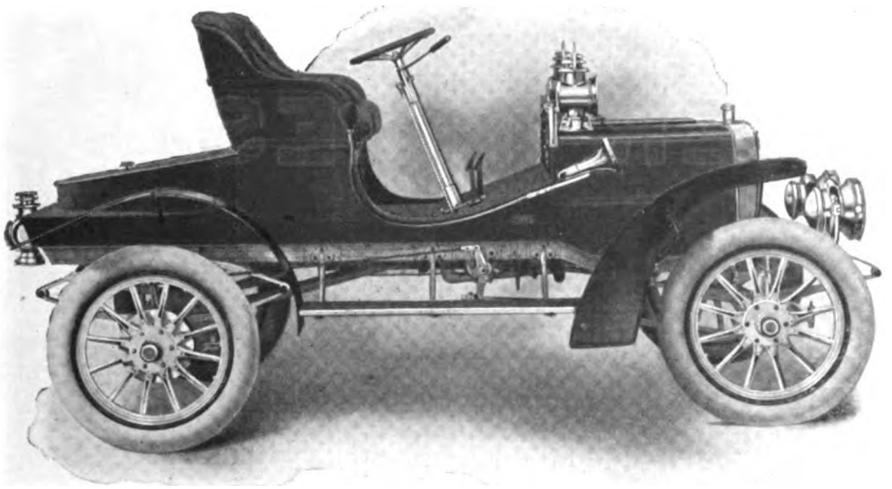
Yours truly, CRAWFORD AUTOMOBILE COMPANY.

THE WHITNEY MFG. CO., Hartford, Conn.

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NORTHERN

2 CYLINDER RUNABOUT



Lacks Nothing—Discards Much

The reason:

It was up to somebody to realize the possibilities of the two-cylinder motor. We undertook the job. Not with the "switching-engine" fore-and-aft type, but the two-cylinder engine set cross-wise under the hood where it is instantly accessible and equalizes every impulse; placed where it is possible to get a straight line transmission to the rear wheels, where all the power ought to go. Then followed a process of elimination all the way through, discarding everything superfluous and retaining and creating everything desirable.

The Sturdy Northern, silent as the stars, is the finished result.

We didn't, and don't, accept as fact the doctrines of other makers.

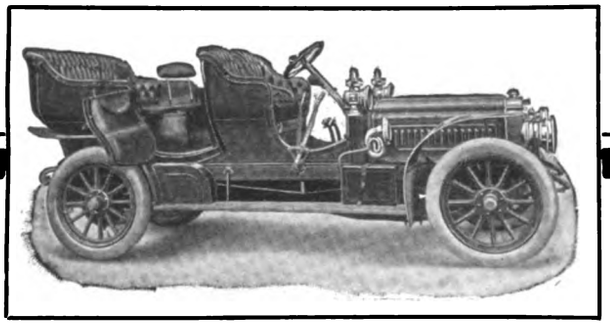
So far, we've made good on independent thinking.

We're still thinking.

Watch the Northern four-cylinder air-clutch car next season. Meantime, let us tell you something about it.

NORTHERN MOTOR CAR CO., Detroit, Mich.

Members Association of Licensed Automobile Manufacturers.



STOP JUST A MOMENT!

The car that can do what the THOMAS has done in the past few weeks is a car you've GOT TO CONSIDER FOR 1907. The 1907 model will be in the streets by the time this reaches your eye.

But in the meantime the 1906 car has been making history. It has been smashing records that count—records not merely of speed, but records that stand for extraordinary endurance. "Reliability" is Mr. Thomas' hobby, and his favorite word—and certainly reliability is strikingly expressed in this story of triumphs.

THE WORLD'S 50-MILE RECORD. At Point Breeze Park, Aug. 22nd, E. R. Kelley, driving regular stock Thomas, driven daily by the owner, G. L. Mayer, of Philadelphia, broke the world's 50-mile record, doing the distance in 1 hour 3 minutes and 19¾ seconds.

THE WORLD'S 50 MILE RECORD No. 2. Best previous world's record for 50 miles, made by Thomas at Chicago, July 4, 1906, in 1:06:19.

WON $5,000 TOURING CAR CONTEST. Atlantic City, Sept. 3rd, Thomas won $5,000 Touring Car Contest (regular equipment, carrying five people), defeating Pierce, Packard and Winton.

WON THE PRICE HANDICAP. Price Handicap, four-cylinder touring cars, Atlantic City, Sept. 3rd, carrying five passengers. $4,000 car in scratch. 50 H. P. Thomas, first; 50 H. P. Thomas, second; 30 H. P. Mitchell, third; 35 H. P. Maxwell, fourth.

WON $1,000 MATCH RACE. Sept. 3rd, Atlantic City, to S. Smith, the Philadelphia millionaire, driving a Thomas, defeated 30 H. P. six-cylinder Franklin owned by Samuel W. Moon, of Philadelphia, winning a purse of $1,000.00.

The same splendid qualities that accomplished these results, broke the 25-mile stock touring car record at St. Louis and made a perfect score on the Glidden Tour and then back to Buffalo from Bretton Woods, giving perfect satisfaction to 1018 owners in all parts of America every day in the year.

Justly—by sheer force of merit—the new and greater THOMAS is certain to be THE PRIME FACTOR for 1907. Watch for particulars of the New THOMAS.

THE E. R. THOMAS MOTOR COMPANY

Members Association of Licensed Automobile Manufacturers.

1416 Niagara Street, Buffalo, N. Y.

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TO SELLERS AND USERS

OF

CLINCHER TIRES

We have commenced and are vigorously prosecuting suits for infringement of our patents against the Pennsylvania Rubber Company and the Michelin Tire American Agency, Inc., on account of the sale of Clincher tires.

The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J Patents:

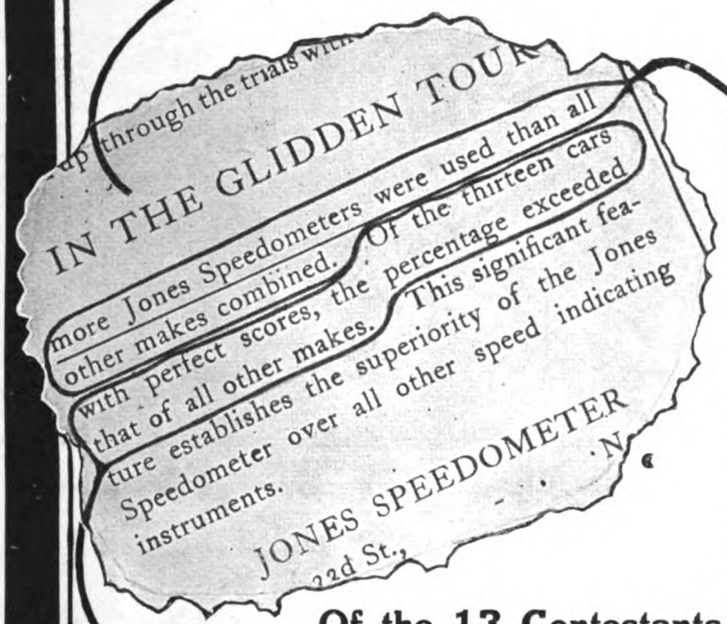
G & J Tire Co.
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G & J TIRE CO.

Indianapolis, Ind.

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"He Who Steals My Purse Steals Trash—But He Who Would Steal—



Of the 62 Contestants in the Glidden Tour

38 (Nearly 2/3) Used The AUTO-METER

Here Are Their Names:

NO.		NO.	
1	N. H. Van Sicklen	47	John L. Snow
2	Arthur Holden	48	James Laughlin
3	L. J. Petrie	51	Ernest Keeler
5	J. H. McDuffee	53	Dexter Fairbanks
9	George M. Davis	54	W. L. Davis
11	George Soules	55	Charles Danzer
12	Wilbur C. Walker	56	W. A. Schmidt
14	Philip S. Flinn	57	Andrew A. Russell
20	Elbert Milton Wiley	59	John Banford
21	Elwood Haynes (2	60	Philip Corbin
25	C. F. Barrett	63	J. H. Becker
27	Percy P. Pierce	65	Theodore E. Schultz
29	H. E. Shiland	67	H. K. Sheridan
30	W. C. Durant	69	Benjamin H. Knowles
37	Charles G. Wridgway	70	Palmer Abbott
38	Arthur L. Rich	72	Pierce 6-Cylinder
39	L. F. Braine	73	Packard
42	Sidney S. Gorham	74	Packard
43	Frank H. Peitsch	75	Olds Runabout

Of the 13 Contestants in the Glidden Tour Who Finished with Perfect Score

10 (Nearly 5/6) Used The AUTO-METER

Here Are Their Names:

NO.		NO.		NO.	
27	Percy P. Pierce, A. C., Buffalo	11	Geo. Soules, A. A. A., Toledo	56	Chas. Burnham, Cleveland A. C.
14	P. S. Flinn, A. A. A., Pittsburg	9	Geo. Davis, A. C., Buffalo	12	W. C. Walker, A. C., Hartford
		25	C. F. Barrett, A. C., Hartford	51	Ernest Keeler, A. A. A., Lansing
		3	L. J. Petrie, Cleveland A. C.	73	Gus G. Buse, A. C., Buffalo

WE make an instrument of such unfailing accuracy and precision that the Cream of Motordom uses it. The **Auto-Meter TELLS THE TRUTH** at all speeds, from one-fourth mile to sixty miles per hour. We have never found it necessary to depart from the **TRUTH** in advertising it.

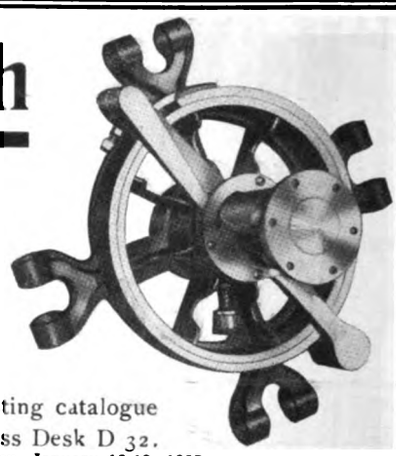
WARNER INSTRUMENT COMPANY

The AUTO-METER is sold by most dealers and at the best garages

320 Roosevelt St., BELOIT, WIS.

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HAYNES Master Clutch



In the HAYNES Master Clutch a cam controlled by a foot lever constricts a band which is keyed to the transmission shaft, on the face of a 10¼-inch pulley, the four forked arms of which extend to the inner rim of the fly wheel, on which are cast four lugs, one resting between each fork. Very stiff coil springs are fitted one on each side between the lugs and the forks. The stiff coil springs effectually cushion the transmission, driving mechanism and all keys from the shocks and racking effect caused by the sudden application of high power, and greatly prolong the life of the entire machine. The operator can "pick up" the car without a jar or tremor, a sudden jerk, as is common with the cone and several other types of clutches, being impossible.

The HAYNES is the highest-powered shaft-driven car built. In requesting catalogue for prompt attention, address Desk D 32.

We shall exhibit only at the Seventh National Automobile Show, Madison Square Garden, January 12-19, 1907.

HAYNES AUTOMOBILE CO., Kokomo, Ind.

CHICAGO, 1420 Michigan Ave.
NEW YORK, 1715 Broadway

Members A. L. A. M.



"The Car the Repairman Seldom Sees"

MODEL "R" FOUR-CYLINDER TOURING CAR.

Vertical roller-bearing engines. Cylinders cast separately, 5⅛x6 inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller bearings throughout. 108-inch wheel base. 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,700 pounds. Price, $3,500, f. o. b. Kokomo. Full equipment.

MODEL "O" FOUR-CYLINDER TOURING CAR.

Cylinders cast in pairs 4¼x5 in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250, f. o. b. Kokomo. Full equipment.

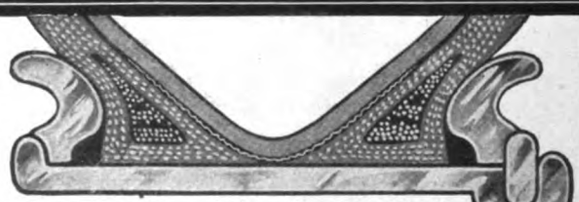
The GOODYEAR Detachable AUTO-TIRE

is "wrapped tread" construction. The soft, resilient Para Rubber and the tough, dense composition rubber are "wrapped" together and vulcanized into an inseparable whole. This gives a tire which is



90% Puncture Proof

almost as durable as a Solid Tire, and as Resilient as the liveliest. Call at the factory or any of the following branches and let us demonstrate.

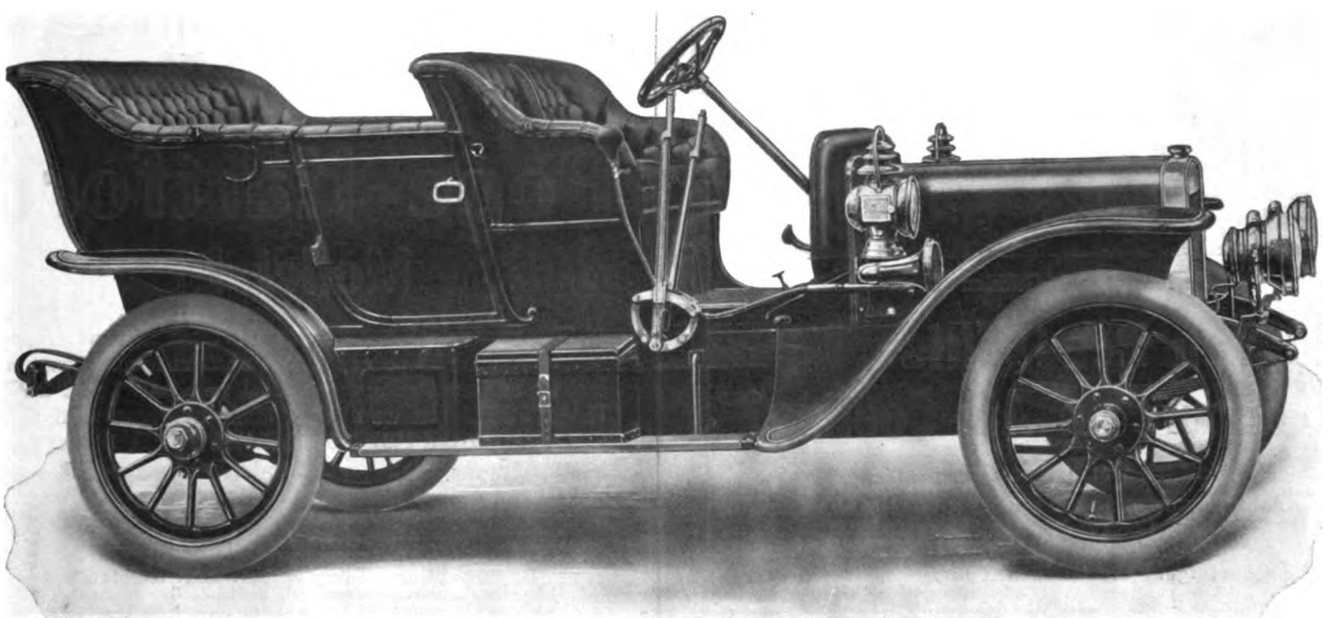


BOSTON, 261 Dartmouth St.
NEW YORK, cor. Sixty-fourth St. and Broadway.
CHICAGO, 82-84 Michigan Ave.
CINCINNATI, 242 E. Fifth St.
ST. LOUIS, 712-714 Morgan St.
OAKLAND, Geo. P. Moore & Co., 377 10th St.
BUFFALO, 719 Main St.
DENVER, 220 Sixteenth St.
DETROIT, 242 Jefferson Ave.
LOS ANGELES, 932 So. Main St.

The Goodyear Tire and Rubber Company
Grove Street, Akron, Ohio.

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WINTON



Model M, A Car of Good Features

The multiple disc clutch on the Winton Model M takes the fourth speed from standing start as gently as the first.

Off-set cylinders eliminate "knocking" and piston side-thrust. Give the greatest possible delivery of power to the crank shaft.

Valves all on one side and the perfect profile of cams make the motor lively and rapid, and assure a wide range of motor speed.

Four speeds ahead, selective type transmission, with DIRECT drive on THIRD speed.

Off-set cam shaft and but four springs for eight valves—the newest thing in automobile construction, and one of the very best. Cam shaft removable without disturbing valve adjustments.

Low suspension of motor gives practically horizontal drive shaft.

All working parts directly accessible, and all materials tested to provide the Winton feature of Safety.

Four cylinder, 40 H. P. motor.
Mechanically throttled carburetor.
Ground cylinders, pistons and bearing surfaces.
Jump spark ignition.
Centrifugal pump cooling.
Equipped with two head lamps, two side lamps, tail lamp, trunk carrier, horn, tools, etc.
Perfected Winton Twin springs.
Trustworthy "Shooting" oiler.
Tough I-beam Parsons' manganese bronze front axle.
Ball and roller bearings properly distributed.
Seven passenger body.
$3,500, f. o. b. Cleveland.

Preliminary circular No. 7 describes Model M in detail. Book No. 8 described Winton Type X-I-V. 30 H. P., $2,500.

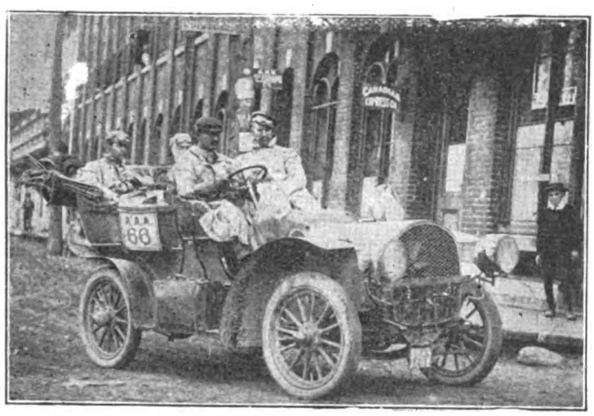
THE WINTON MOTOR CARRIAGE CO., Cleveland, O., U. S. A.

Member Association of Licensed Automobile Manufacturers.

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THE MARMON

"A Mechanical Masterpiece"



Perfect Score—Glidden Tour.

Did You Read This Report on Air-Cooling?

We think it's worth repeating.

After enumerating the knocks given the air-cooling theory by the "foreign car" copyists, the Horseless Age says of air-cooling in the Glidden Tour:

"The air-cooled cars, in negotiating such steep grades as the Schwarz and Spruce hills, had the advantage of their water-cooled competitors, inasmuch as when the top of the grade was reached and the load reduced, their engines cooled rapidly, and they were able to continue on their way without delay. With the water-cooled cars the water was boiling furiously, and even spouting out of the vent holes in the water cap. A number of drivers were scalded in removing the caps, while some time was lost in getting a new supply of water, and then allowing enough to run out of the cooler to make room for the new supply."

The above is from "Lessons of the Tour," by Harry B. Haines, in The Horseless Age, Aug. 1, 1906.

In the same issue, is another excellent article by A. L. Clough, on "Technical Conclusions from the Contest."

We recommend these articles by unbiased experts to any man who really wants to know the relative merits of water-cooling and air-cooling of the perfected sort, as found in the Marmon system of individual cylinder cooling.

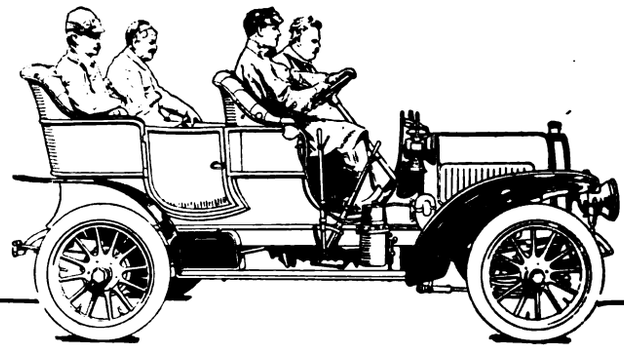
THE LIVE AGENT

In your territory is going to investigate the 1907 proposition at an early date.

Nordyke & Marmon Co.

(Established 1851) **Indianapolis, Ind.**

Members American Motor Car Manufacturers' Association.



1907 Pope-Hartford Model L

The product of our famous Hartford factories represents the cumulative experience of twenty-nine years in making and marketing mechanical vehicles. The **POPE-HARTFORD** has won in all kinds of events and tests this year yet the **1907 POPE-HARTFORD, Model L** is better in every detail. Don't order until you see this car. Send for complete information.

SPECIFICATIONS:

MOTOR: Four cylinder; vertical; water cooled; all gears encased—valves all mechanically operated and interchangeable—25-30 h. p. Nickel steel crank shaft. Carburetor special design, very flexible. Jump spark ignition. Provision for magneto.
CLUTCH: Inverted cone type of large diameter.
TRANSMISSION: Sliding gear type with three speeds ahead and reverse.
DRIVE: Through a propeller shaft, pinion and bevel gear to the rear axle.
LUBRICATION: By a special oiler located under the hood, driven by belt from the cam shaft, with sight feeds on the dash.
FRONT AXLE: Solid forging made of special steel of the I-beam type.
REAR AXLE: Of solid steel running on large ball bearings in tubular sleeve.
STEERING: Strictly irreversible. Worm and sector type.
BRAKES: Two sets operated by foot pedals and side lever.
CONTROL: Ignition and throttle levers on top of steering wheel but not revolving with it. Gears changed by one hand lever.
FRAME: Armored, similar to our Model F frame.
BODY: Entirely new design, distinct and elegant. Double side entrance. Roomy tonneau with large doors.
HOOD: Improved design. Front guards overlapped and connected with the frame.
WHEEL BASE: Increased to 102". Tread 56".
WHEELS: 32 x 4" front and rear, running on large ball bearings.
EQUIPMENT: Full set of lamps, horn, tools and floor mats.

PRICE, FULLY EQUIPPED

$2750

(*Extension Top $150. Extra*)

Pope Manufacturing Co.

HARTFORD, CONN.

New York: 1733 Broadway. Boston: 223 Columbus Ave.
Washington, D. C.: 819 14th St., N. W.

Member Association of Licensed Automobile Manufacturers.

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Locomobile

Wins Endurance Run of the Albany, N. Y., Automobile Club

Joseph B. Taylor, driving his 30-35 H.P. "Locomobile," won the silver cup donated by Col. A. J. McClure. Over 540 miles through New England without a stop or adjustment.

Also W. L. L. Peltz, driving a 30-35 H.P. "Locomobile," secured honorable mention. 19 competing cars. Two of them "Locomobiles."

Send for "Locomobile" Catalogue.

The *Locomobile* Co. of America

BRIDGEPORT, CONN.

Members Association Licensed Automobile Manufacturers.

National

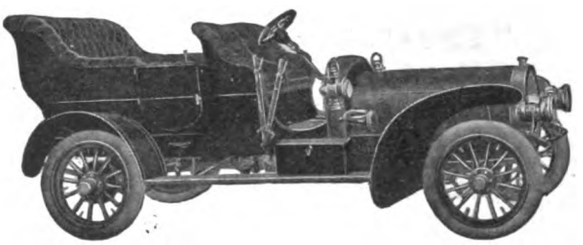
WORLD'S RECORDS

FOR

1000 Miles and 1094 3/16 Miles in 24 Hours

Made Nov. 17th, 1905

STILL STANDS UNEQUALLED.



4 Cyl. 35-40 H. P. $3000. 6 Cyl. 50-60 H. P. $4000.

NATIONAL RELIABILITY AND ENDURANCE ARE HARD TO BEAT.

Write for Particulars.

WATCH FOR THE ROUND RADIATOR

National Motor Vehicle Co.

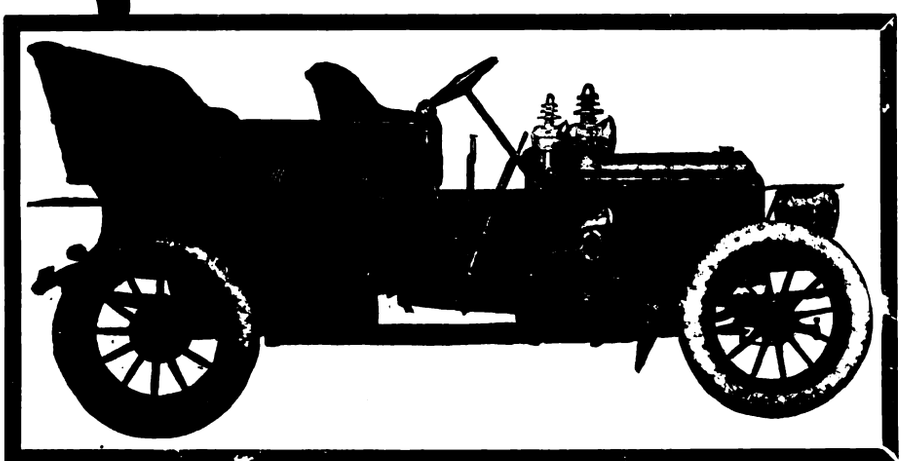
1007 E. 22d STREET,

Indianapolis, Ind.

WATCH FOR THE ROUND RADIATOR

• *Member American Motor Car Manufacturers' Association, N. Y.* •

A Quotation from Collier's About the TWO-CYCLE ELMORE



Some things printed in Collier's Weekly the other day about the Two-Cycle Elmore are worth repeating. There's meat in them.

It's in our language—but it's true, every word of it.

In this announcement we said:

"We believe that the two-cycle engine is the most potent force and the most vital principle in automobile construction to-day.

"We believe that no man can make the issue plain between two-cycle and four-cycle without being **forced** to this conclusion.

"We contend that the two-cycle principle of **constant torque** or **continuous power** is absolutely vital to the highest possible development of the automobile.

"We want you to know that the two-cycle Elmore has proven this over and over and over again—that the last and greatest proof was the Glidden Tour.

These statements are not mere "sounding brass and tinkling symbals." Back of them is the evidence. Part of it is contained in several books you owe it to yourself to read.

One is called "Busy Little Two-Hundredth of a Second." Another is called "One Long Jump and Two Short Steps." A third clearly explains the two-cycle principle. Write for them at once.

THE ELMORE MANUFACTURING COMPANY, Members A. L. A. M. **1104 Amanda St., Clyde, Ohio**

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MATHESON

50 AND WON FIFTH SECONDS

"The seven passenger seventy miles an hour Touring Car" at Atlantic City September 4 and 5 broke THE WORLD'S RECORD, defeating the Winner of the Touring Car championship and the victor of the races for foreign cars.

THE MATHESON, this great AMERICAN Stock Touring Car, is the FIRST and ONLY CAR which has substantiated the CLAIMS made by OTHERS. Licensed Under Selden Patent.

IMMEDIATE DELIVERIES

The Matheson Company of New York

1619 BROADWAY

PHILADELPHIA BRANCH:—THE BELLEVUE-STRATFORD GARAGE

Wayne

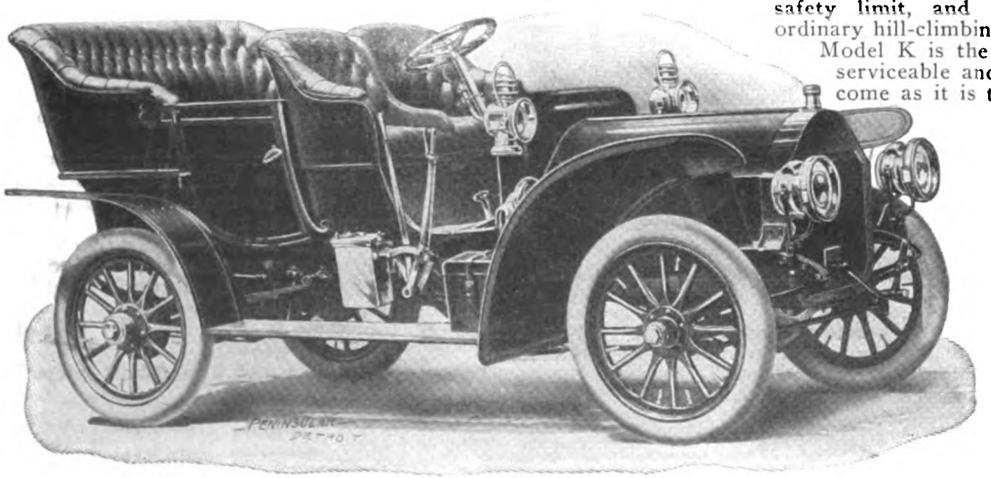
MODEL K

FOR 1907

$2,500

Model K is a 4 cylinder car of standard type. This model has been thoroughly tested and we are prepared to give the strongest kind of guarantee that Model K will "stand up" under the most trying road conditions.

All the recognized 1907 improvements will be found in Model K. Our aim has been to make this car a thoroughly representative type of high grade American automobile construction. There is nothing "freakish" or experimental in its makeup. Every detail has been worked out with a view to giving a high-powered touring car capable of any desired speed up to the safety limit, and able to demonstrate more than ordinary hill-climbing ability on the high gear.



Model K is the type of car which will be just as serviceable and just as good looking in years to come as it is to-day.

The motor develops 35 H. P. on the brake. The cylinders are 4¼x5. The crank case and transmission case form a single two-piece aluminum structure, which ensures rigidity and perfect alignment.

We can make limited deliveries on Model K this month. Write us for further particulars and our catalog describing this and other cars in detail.

We can also make deliveries on the 1907 Model F, 50 H. P., $3,500.

WAYNE AUTOMOBILE CO.

Dept. 4 DETROIT, MICH.

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"ON RAILS OF RUBBER"

That's where the Motor Truck must run to be a success.

Diamond
Wire Mesh Base Tires



for Motor Trucks and Commercial Cars, are the only practical Rubber Rails.

The weaknessess of ordinary truck tires have been avoided in Diamond Wire Mesh Base Construction.

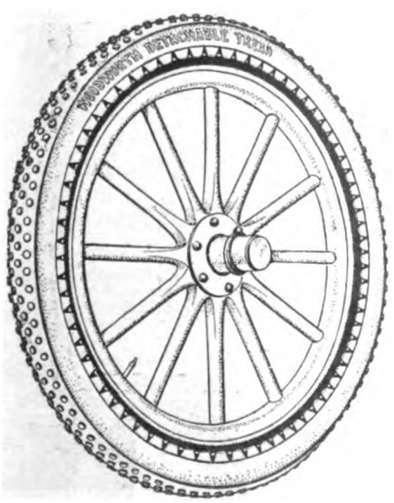
Note the cut. See the low, broad tread, giving enormous traction (the right ground grip) and avoiding leverage for side strains.

Simple—Economical—Scientific, and made of high-grade rubber. *Let us send you a catalogue.*

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

NEW YORK—78 Reade St.
NEW YORK—1717 Broadway.
BOSTON—174 Columbus Ave.
PHILADELPHIA—304-306 N. Broad St.
BUFFALO—715 Main St.
DETROIT—258 Jefferson Ave.
ST. LOUIS—3966 Olive St.
CHICAGO—1523-31 Michigan Ave.
CLEVELAND—1514 Euclid Ave.
OAKLAND—108-110-112 Telegraph Ave.
MINNEAPOLIS—503 Second Ave., S.
DENVER—1735 Arapahoe St.

THE WOODWORTH
Detachable Tread
Is PUNCTURE PROOF



It is made of chrome leather, studded with steel rivets, held on the tire by steel wires, adjusted with small nuts. Can be applied without removing tires from the wheels. Takes all the wear of the road. The only cover that does not chafe and heat the tire. *Anyone can apply it.*

28 x 2½	$11.00	each
28 x 3	12.00	"
30 x 3	13.00	"
30 x 3½	15.00	"
30 x 4	16.00	"
32 x 3½	16.00	"
32 x 4	18.00	"
34 x 4	19.00	"
34 x 4½	20.00	"
36 x 4	20.00	"
36 x 4½	22.00	"
36 x 5	25.00	"

760 mm. x 90 mm. tires take 30 x 3½ treads.

LEATHER TIRE GOODS CO.
Boyleston St., Newton Upper Falls, Mass.

THE
AJAX TIRE

is the only tire whose material and workmanship are of such a quality as to make a guarantee practicable for the manufacturer.

The numbered certificate which goes with every Ajax tire is a

GUARANTEE

of freedom from rim-cuts, blow-outs and blisters for at least

5,000 MILES

Send for copy of this guarantee, stating size of tire you are using.

It solves your tire problem.

WRITE DEPT. A

AJAX-GRIEB RUBBER CO.
GENERAL OFFICES: 420 E. 106th ST., NEW YORK CITY

FACTORIES—NEW YORK CITY, TRENTON, N. J.

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LOZIER

1907 AGENCIES

¶ We are now closing Agency contracts for 1907 LOZIER MOTOR CARS, and there is still a chance for a few live agents in some of the larger cities.

¶ The retail demand in New York City and vicinity, for LOZIER MOTOR CARS is so large that only a limited number of cars can be furnished to agencies, and it is therefore advisable that those desiring to represent this high-grade product in their locality should communicate with us at once, as territory will be assigned to responsible first comers.

¶ The agencies which we will establish will have cars allotted to them, and assurance will be given that deliveries will be satisfactory, as the number of LOZIER agents will be limited.

¶ Deliveries will begin in October.

¶ 40 and 60 Horsepower.

1907 AGENTS

Geyler & Levy, Chicago.
Myronda Motor Car Co., St. Louis.
Sid Black Auto Co., Cincinnati.
White & Castle, Springfield, Mass.

THE LOZIER MOTOR COMPANY

Member Association Licensed Automobile Manufacturers.

55TH STREET AND BROADWAY, NEW YORK CITY

We shall exhibit only at the Seventh National Automobile Show at Madison Square Garden, New York City, January 12-19, 1907.

Two Punctures

Between San Francisco and New York



represents the sum total of tire troubles in the remarkable transcontinental record run of a Franklin car equipped with

GOODRICH TIRES

A new cross-country speed record (3,500 miles in 15 days) and another practical demonstration of Goodrich Tire superiority following close upon the Glidden Tour accomplishment where 66⅔% of the clean score cars were equipped with **GOODRICH AUTOMOBILE TIRES.**

THE B. F. GOODRICH COMPANY,
AKRON, OHIO

New York, 66-68 Reade St. & Broadway — Chicago, 24 E. Lake St.
Oakland, Fourth and Washington Sts. — Boston, 161 Columbus Ave.
Philadelphia, 909 Arch St. — Buffalo, 731 Main St.
Detroit, 266 Jefferson Ave. — Denver, 1444 Curtis St.
Cleveland, 2188 Ninth St., S. E. — St. Louis, 3926-28 Olive St.
London, E. C., 7 Snow Hill.

GOODRICH TIRES

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The G & J Oval Raised Tread Tire

The Tire Without An Equal

FOR RACING
FOR LONG, HARD DRIVES
FOR EVERYDAY USE

Built on a plan that insures

HIGHEST SPEED GREATEST DURABILITY
LEAST LIABILITY NO TIRE TROUBLES

The flap makes pinched tubes impossible.

The manner in which the tire constricts to the rim positively prevents creeping.

The absence of lugs makes it the easiest tire in the world to handle.

Ask for our printed matter giving full particulars.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

G&J Tire Co.

Indianapolis.

Depots:

Chicago **Boston** **Cleveland**
Detroit **Buffalo** **Denver**
Philadelphia
San Francisco, 423-433 Golden Gate Avenue
New York, 10 West 60th Street

Distributing Agencies:

Minneapolis, Plant Bros.
Portland, Ore., Keats & Co.
Los Angeles
Ramsay-Hutchins Rubber Co.,

NO BETTER PROOF OF HIGH STANDING

is needed than the fact of the selection by the Vanderbilt Cup Race Committee of the

CORBIN

as its official car.

Backed by ample capital, over fifty years' knowledge of high-class manufacturing, the experience of a vast engineering corps and a policy which demands that everything be done right

Corbin Motor Vehicle Corporation

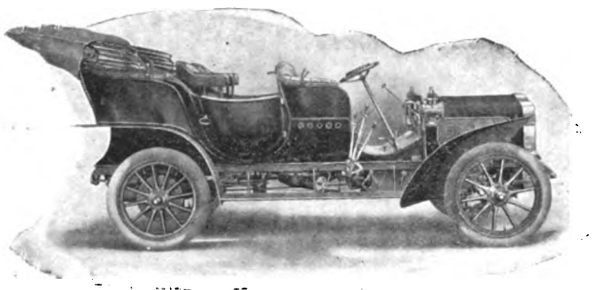
NEW BRITAIN, CONN.

N. Y. Branch, 1799 Broadway, New York.
E. T. Kimball Co., Motor Mart, Boston.
Bennett-Bird Co., 1470 Michigan Ave., Chicago.
J. W. Leavitt & Co.,
415 Golden Gate Ave., San Francisco.

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The Incomparable WHITE

The Car for Service



MORE HONORS FOR THE WHITE

In the arduous 115-mile Reliability Test of the Lugano-Unione Sportiva, held August 19th, over the celebrated St. Gothard Pass, a White made a perfect score and was awarded a gold medal.

In the Los Angeles Endurance run, June 29th-30th, three Whites made perfect scores. No other make which was represented by more than one car escaped penalization.

More significant still, as demonstrating not only the reliability but also the simplicity of operating the car, was the perfect score made by Mrs. F. B. Draper, driving her White Steamer, in the recent Chicago-Elgin-Aurora Endurance run.

Write for circular descriptive of our new models

WHITE SEWING MACHINE COMPANY
CLEVELAND, OHIO

and then again if you had been trying to build automobiles for several years and had never been able to produce a model that could be sold the second year in the same locality, and if you believed that the motor car was only a passing fad which would soon die out and that the thing to do was to go after the faddists and "soak 'em" good and proper while you could, would you too, each succeeding year, try to blot out the past and bring out something new, just calculated to catch the "gullibles," and keep on doing so until the supply ran out and there were none left to experiment on?

IF YOU HAD TO WORK some new scheme every year or quit the business, which would you do?

IF YOU HAD TRIED to make two-cylinder cars and found you couldn't, wouldn't you try making fours, and when you found you couldn't make those either, wouldn't you try sixes? Then when you found you couldn't make any kind of an automobile and make it even half good, what would you do?

BUT ON THE OTHER HAND, if you had started out and made even a "one lunger" that was so far ahead of anything ever produced, that it compelled everybody to sit up and rub their eyes, and if that same little "one lunger" commanded such favor and respect that in two years its sale was heavier than that of any other car, and that inside of four years its sale was nearly, if not quite, as large as that of any four models combined of other makes (or to be exact, 3655 "one lungers" so far this year, and still just 98 cars behind specification dates) and if the little "one lunger" had never been even approached as a car of thorough dependability and economy and if it constituted one-eighth of all the automobiles in use in this country (which it does) and if it were becoming more popular every day; if there were many persons who would have that "one lunger" or no automobile at all, wouldn't it be worth pushing?

IF YOU HAD THE REPUTATION of not turning out anything but what was as near right as fallible human beings could make it, and if you were credited with never having sacrificed that reputation for the sake of mere temporary gain, wouldn't you be foolish to sacrifice it now?

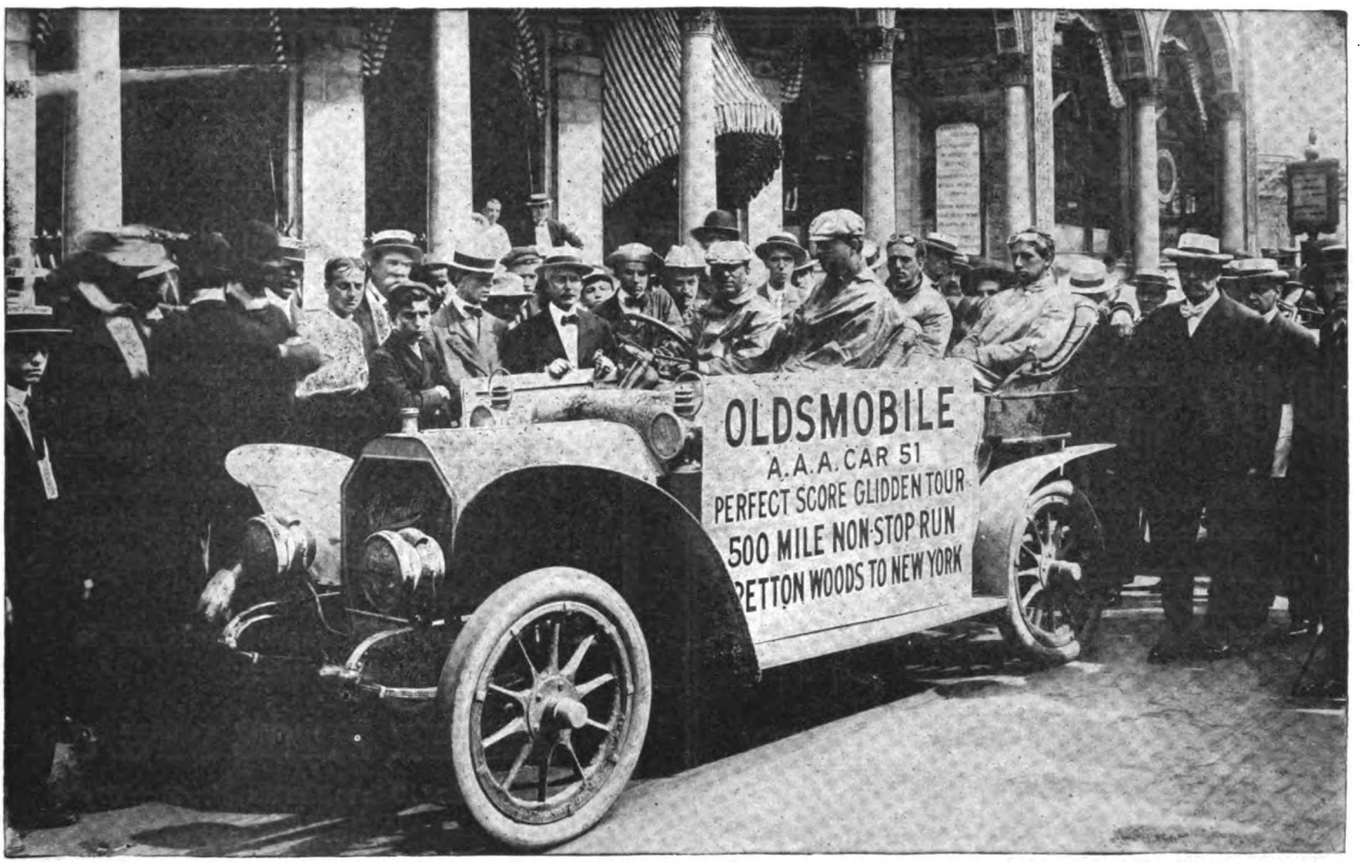
OF COURSE, IF YOU HAD NO REPUTATION to lose, you could keep on experimenting with automobile buyers' money, hoping that some day in the dim distant future you might strike something—if the supply of "dead-easys" held out.

BUT DON'T FORGET that the "one lunger" will continue doing business and helping the "experiments" up hill and through the mud—We might be tempted to show you some interesting proofs of this.

AND NOW SOME MORE: The same high standard of skill and precision in manufacture which made the "one lunger" a mark for others to strive to reach, has been embodied in quadruple form in the Cadillac model H, giving results in smooth and perfectly balanced action which some other makers have thought to attain by complications in a multiplicity of cylinders rather than by refinement of existing types.

CADILLAC MOTOR CAR CO.
DETROIT, MICH.
Members Assn. Licensed Auto. Mfrs.

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You Drive a Winner When You Drive an

OLDSMOBILE

Here's a letter written to our Canadian agent from Wolfville, Nova Scotia, under date of August 23rd:

"The Model "S" Oldsmobile which I ordered from you through the Gas Engines & Supply Co., of Halifax, reached that city safely last Friday and I took delivery on Saturday afternoon and was enabled to leave this town at 6 P. M.

"After getting car off railway car I put wheels on and filled tanks, threw in switch and got compression and motor started off in fine shape.

"The first 30 miles of road was very bad, large loose boulders all over it, but nevertheless I made the run in about 2 hours.

"Reaching Mt. Uniack I made a thorough inspection of car and finding all right started out on last 40 miles run and reached home at midnight, which, considering the roads and the run with the exception of the first 20 miles being at night, I consider a most remarkable performance for a new stock car.

"At times I attained a speed of 45 miles an hour and took all hills with few exceptions on direct drive.

"I am more than pleased with the car, both as regards workmanship and performance.

Yours truly,

W. M. BLACK."

We have hundreds of other letters equally strong. Write us for particulars regarding the Glidden Tour and other records made by the Oldsmobile.

OLDS MOTOR WORKS, Lansing, Mich, U. S. A.

Members Association of Licensed Automobile Manufacturers.

We shall exhibit only at the Seventh National Automobile Show at Madison Square Garden, January 12-19, 1907.

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Columbia

Automobiles

1907 GASOLENE ELECTRIC 1907

Will maintain the high standard of excellence attained in the past.

An improvement made in all models where experience has demonstrated its value tends to make the COLUMBIA better than ever before.

Electric Vehicle Company

HARTFORD, CONN.

NEW YORK BRANCH—134-136-138 West 39th St.
CHICAGO BRANCH—1332-1334 Michigan Ave.
BOSTON—Columbia Motor Vehicle Co., 74 Stanhope St.
WASHINGTON—Washington E. V. Transportation Co., 15th & Ohio Ave.
Members Association of Licensed Automobile Manufacturers.

SOLARS

SHOW THE WAY

The **Solar Parabolens Projector** will please the motorist who wants to see where he is going.

There is light and plenty of it that pierces the distant obstruction and at the same time lightens up the ground right in front of the car.

Our Bi-Concentric lens is what does the trick.

BADGER BRASS MFG. CO.

11th Ave., 36th to 37th Sts., New York City

KENOSHA, WIS.



IF YOU USE SELL HANDLE GASOLENE

You are not safe from explosion unless you use

THE SNELL HYDRAULIC SYSTEM

Approved by the New York Board of Fire Underwriters, the Board of Health and the Fire Department.

Gasolene cannot explode unless mixed with air.
The SNELL SAFETY TANK is the only tank which is always filled with liquid; gasolene or water or gasolene and water (they can not mix). Any other tank admits air as the gasolene is drawn off and immediately becomes an acute source of great danger. The air also evaporates the most vital part of the gasolene and leaves the remnant with less power units. In the SNELL SAFETY TANK these dangers can not happen because no air can get in as the tank is always full of liquid. The New York Board of Fire Underwriters recognizing the absolute safety of our tank give the users of it a minimum rate of fire insurance. Write us for free descriptive booklet. It will save money for you.



SAFETY TANK COMPANY,

Selling Agents Hydraulic Oil Storage and Distributing Co.,
DETROIT, MICH.

Central Building, 25 West 42nd Street, New York.

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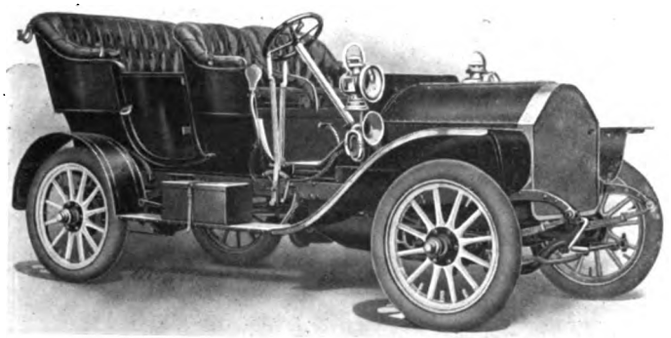
"The direct system of cooling shown by the Glidden Tour to be the most efficient in existence, direct or indirect."

Model "H"
KNOX
WATERLESS
25-30 H. P.
$2500

OUR 1907 CREATION, THE

Model "H" Knox Waterless

is shown for the first time. It embodies more points of merit and contains more high grade material and workmanship than any other car at its price. Months of thorough testing have failed to reveal a weakness, and we offer it confident of its ability to serve all the purposes of a touring car under any conditions. Advance pamphlet and details are ready for mailing. SPECIFICATIONS:—Horse-Power, 25-30; four cylinders, 4⅜ in. x 4¾ in.; 32-in. x 4-in. tires; wheel base 102 inches; selective sliding gear transmission, three speeds forward and reverse; shaft drive, with ball and rolier bearings; chrome nickel steel drive gears; capacity, five persons; speed, 45 miles an hour; weight, 2,250 pounds, *actual;* color, Napier green or Mercedes red, with red leather upholstering, all of Knox quality.



Knox Automobile Company
Member Association of Licensed Automobile Manufacturers.
SPRINGFIELD, MASS.

MICHELIN MILES

You have heard of a few of them in 1906 undoubtedly.
Such for instance as the winners of

La Targo Florio
La Coupe D'or De Milan
Le Grand Prix (Sarthe)
Le Circuit des Ardennes

Not to mention the others in 1904 and 1905.

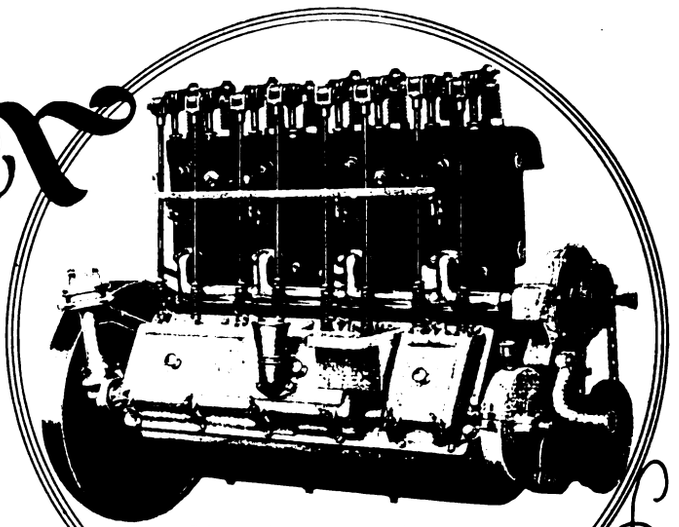
MICHELIN PRODUCTS SELLING COMPANY

E. D. WINANS, Manager
31-33 WEST 31st STREET, NEW YORK CITY
SOLE AMERICAN REPRESENTATIVE OF MICHELIN et CIE, CLERMONT-FERRAND, FRANCE

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Rambler

THE CAR THAT IS RIGHT



Right side Model 15. Motor showing valve mechanism

Motor power is commonly rated by calculations based on cylinder capacity, gauge tests, etc.

Through faulty design, poor valve action and overheating, the actual power often falls far below this rating.

The Rambler motors are fitted with over-head valves of ample size and opening. This results in quick clearance of exhaust gas, which assures a full charge of fresh vapor and a cool engine.

The workmanship is of the same high class that has characterized all Rambler Models.

Model 15, the leader of the 1906 line, is a powerful touring car, with 35-40 horse power motor, and every modern feature in power, plant and equipment.

Full details of this and five other models in the second edition of our 1906 catalogue, which is at your service.

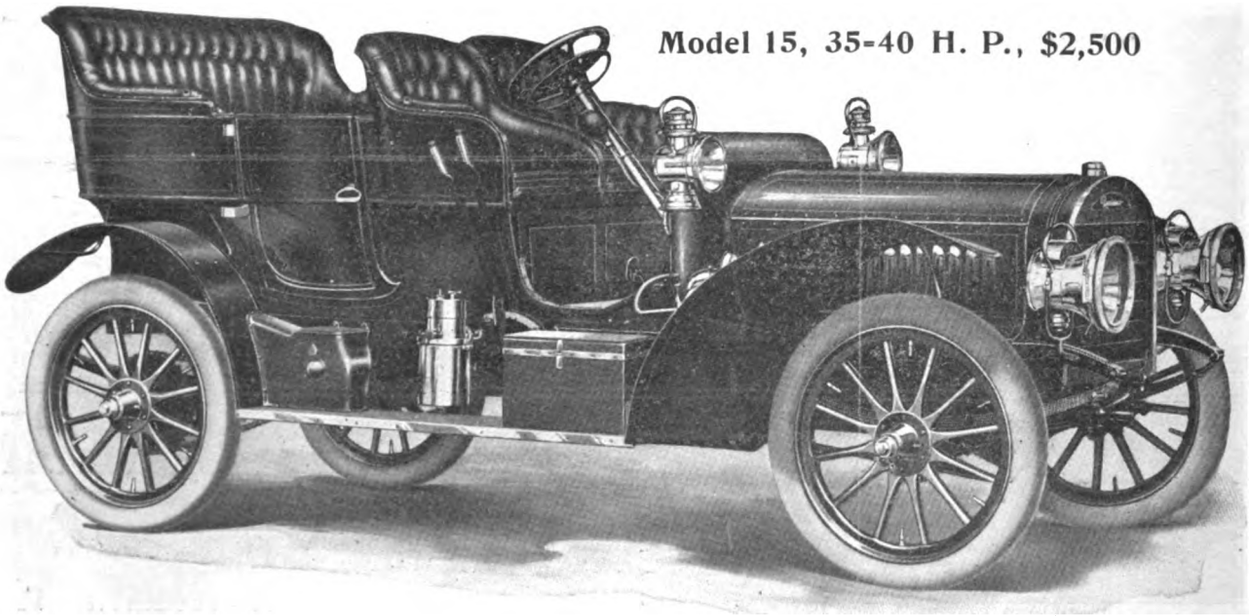
Main Office and Factory, Kenosha, Wisconsin

BRANCHES:

Chicago, Milwaukee, Boston, Philadelphia, San Francisco.

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Thomas B. Jeffery & Company



Model 15, 35-40 H. P., $2,500

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THE MOTOR WORLD

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, September 20, 1906. No. 16

CHICAGO SETS SHOW DATES

First Week in February Selected—Allotments to be Made in October.

February 2nd to 9th, inclusive, will be the dates of the next Chicago show, and as was the case of the last exhibition, not only the Coliseum but the First Regiment Armory will be employed. The allotments of space will be made on October 3rd and 4th. The announcement to this effect was officially made this week by Manager Miles.

Members of the National Association of Automobile Manufacturers will be allotted space on October 3rd. The members will be entitled to attend the meeting and draw for the order of selection, and on completion of the drawing will select space in their proper order. The amount of space to which each will be entitled will be determined by the management in advance.

The entire gallery of the Coliseum and as much of the second floor of the Coliseum Annex as may be needed will be allotted to the members of the Motor and Accessory Manufacturers.

The remaining space will be allotted to other exhibitors on October 4th, the same method of allotment being followed.

The space set aside for the Motor and Accessory Manufacturers will be allotted by a committee of that organization on October 3rd. Applications by members of the Motor and Accessory Manufacturers should be mailed to D. J. Post, president Hartford, Conn., and all other applications to S. A. Miles, manager, 7 East Forty-second street, New York City.

The exhibition will be open only to those who have not, since September 1st, 1904, taken part in a show which has not been sanctioned by the National Association of Automobile Manufacturs, Inc.

Perrin Returns to Lozier.

One of the additions to the Plattsburg works of the Lozier Motor Company is a building 200x60 feet which will be devoted exclusively to the uses of the experimental department, under the supervision of John G. Perrin.

When the Lozier Company first began experimenting with automobiles in their former factory in Toledo in 1893, Mr. Perrin was active in this work, and later was given full charge of the designing and experimenting in the automobile department, and much of the success of the Lozier car has been due to his genius. About a year ago he served his connection with the Lozier company, but has now returned and is in charge of this department.

Marion as an "Energy Merchant."

W. C. Marion, Jr., former manager of Morgan & Wright's New York branch, has set up in business on his own account as an "energy merchant," to quote the inscription on his letter-head. He will buy and sell on commission or sell his services for any period from one day upward for the performance of special missions.

McCutcheon Leaves the Premier.

Chas. G. McCutcheon, general manager of the Premier Motor Mfg. Co., has resigned. His lightning rod is up, and if the proper kind of lightning strikes it he will undoubtedly be heard from. Mr. McCutcheon is an uncommonly capable man.

Dietrich Goes to Kansas City.

L. M. Dietrich, late with the Aerocar Company, has engaged with the Kansas City Motor Truck Company, Kansas City, Mo. He will have complete charge of the designing and building of their trucks.

Otis Cook Joins International.

Otis R. Cook, formerly of the B. F. Goodrich Co., and later for a brief time an ornament on the trade press, has joined the traveling staff of the International A. & V. Tire Co.

Snyder Forming a New Company.

Harry Snyder, of Teagon Bros. & Snyder, Detroit, distributors of Goodyear tires in Michigan territory, is forming another company to handle International tires there.

SUES MANHATTAN STORAGE

Another Victim Turns and Tells the Same Old Story—Perley Suit Settled.

With the filing of an action in the Supreme Court under the caption of Isaac J. Brown vs. Adolph Morris and David Grinberg, co-partners doing business as the Manhattan Storage Co., there has just come to light another of the many proceedings that are constantly cropping up against that firm.

Attracted by the adroitly baited advertising of the defendants, Brown visited their establishment in West Forty-fourth street, New York, which is plastered with large oil cloth signs to the effect that "a child can buy from us as well as the best trained expert" and a host of others of like import. That was early in June last. He evidently took the scriptural-like quotations that adorn every available part of the walls and ceiling as gospel, for he came back on the assurance of the salesman who has previously figured in many cases of the same kind, that the car was "of 20-25 horsepower and was practically new, having only been run a few hundred miles," parted himself from $1,600 and set forth to gain experience.

Unfortunately, Brown was a mechanic and thought he knew a car that was in good condition when he saw it. Under the generous system of selling followed by the defendants he was permitted to examine and even feel it ad libitum, but it could not be moved from its place in the closely serried ranks of gaudily refurbished crocks until the quid pro had changed hands.

"Of course, while we guarantee it exactly as represented and it is in perfect running condition, we never have any oil or gasolene in the machines and do not permit them to be taken out because that would spoil their finish," he declares was the excuse given him.

The car that Brown finally selected was represented to be a Darracq of recent model, and "scarcely run at all—practically brand new, an up-to-date 20-25 horsepower

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machine." Sad to relate, despite his knowledge of mechanics he never considered for a moment what ten cents worth of fresh aluminum paint might conceal. That was on June 17th last. By July 12th, or a little more than a fortnight later, he saw things in a different light, and he politely requested the return of his money, at the same time tendering back the car. But the concern that was so profuse in its protestations and guarantees about "your money back if you are not satisfied" and "we guarantee absolute satisfaction and will make things right" with a great deal more to the same effect—before they had his money, did not know Mr. Brown or anyone of that name a few weeks later.

In his complaint the plaintiff states that instead of being anything like new, the machine was of ancient vintage—in fact, was a 15-20 horsepower model of some three or four years ago and that it had been run many thousand miles and was completely worn out, the only truth in the defendant's statement regarding the machine having reference to its name. Wherefore he considers himself damaged to the extent of $2,000 for which judgment is prayed. And since then he has been fortunate enough to locate the previous owner of the machine—one of the wealthy, devil-may-care type of motorist, who acknowledges that he literally "ran the machine into the ground" before parting with it as junk, and at a junk price, it is presumed. But then a great deal can be done by the skillful application of a few dollars worth of paint. He even confesses to having attempted to climb a tree with it and in other ways maltreated the machine.

It has also developed that the case of the ancient 12 horsepower Searchmont that was palmed off last year by the so-called storage company on Frank Perley, a theatrical agent on upper Broadway, as a 30 horsepower touring car capable of doing 30 miles an hour or better, is off the court calendar. Mr. Perley became quite wroth when he found that three miles per was nearer the "critter's" gait and that it had an inconvenient habit of balking, and had the salesman arrested and held under $1,500 bail for obtaining money under false pretenses, while he threatened dire things against the firm itself. But like many another of its kind, the case remained on the calendar until it was forgotten and was then quietly "settled" out of court.

The Page Motor Vehicle Company, now located at Providence, R. I., which has been dickering with the Board of Trade of Taunton, Mass., and which had practically decided to locate there, has changed its plans and may locate in East Greenwich, R. I., where a factory site has been offered and the promise given of subscriptions of $20,000 worth of stock. Failure to get a spur track to run into the property is the reason assigned for the alteration of plans.

The Week's Incorporations.

Beloit, Wis.—Lipman Mfg. Co., under Wisconsin laws, with $60,000 capital; to make automobile parts. Corporators—Carl E. Lipman, L. Holden Parker and E. Lipman.

Springfield, Ill.—Sangamon Garage Co., under Illinois laws, with $6,600 capital; to do a general garage business. Corporators—W. B. Chattendon, E. E. Barclay and W. K. Zewadski.

Boston, Mass.—A. E. Morrison Co., under Massachusetts laws, with $25,000 capital; to deal in automobiles and motors of all kinds. President and treasurer, A. E. Morrison, Boston.

Cleveland, Ohio.—Darling Motor Car Co., under Ohio laws, with $100,000 capital; to conduct garage. Corporators—Rolla R. Darling, F. J. Wolcott, W. J. Southard, B. C. Tibbitte and Jay Comstock.

Nashville, Tenn.—Rock City Automobile Co., under Tennessee laws, with $10,000 capital; to deal in automobiles. Corporators—J. J. Hill, C. B. Wood, C. C. Hill, P. D. Houston and E. T. Thurmond.

Cleveland, O.—William Woltman Automobile Co., under Ohio laws, with $2,500 capital; to deal in automobiles, etc. Corporators—William Woltman, J. A. Smith, F. L. Taft, E. A. Williams and L. Pahler.

New York City, N. Y.—Empire State Garage, under New York laws, with $100,000 capital; to do general garage business. Corporators—H. Rau, O. Trich, T. W. Doffie, Brooklyn; J. H. Springer, L. D. Ball, New York City.

In the Retail World.

W. E. Morgan has opened a new garage in Joplin, Mo., on Joplin street, between First and A streets. J. Cox, formerly with the Webb Automobile Co., that city, will be in charge.

Ground has been broken for the garage to be erected on Canal street, Middletown, Ohio, that is to be erected by the Middletown Auto and Cycle Co. The floors will be solid concrete and the structure fireproof.

G. A. and P. E. Pastano have contracted for the erection of a garage at the corner of Talbot avenue and Spencer street, Dorchester, Mass. The building, which will be 76x150 feet, will be one-story and basement, built of cement blocks.

E. A. Fairbrother, acting manager of the Aerocar Company, of Cleveland, Ohio, has succeeded H. H. Thorp, who recently severed his connection with the Cleveland branch. This company handles the Maxwell and the Aerocar at its splendid Euclid avenue show-rooms.

Harry D. Sisson has been elected treasurer and general manager of the Berkshire Automobile Co., Pittsfield, Mass., to fill the vacancies caused by the resignations of Dr. William J. Mercer and F. A. Cooley. Dr. Mercer was formerly general manager and will continue with the company as president.

Owing to the confusion which might result by the similarity of names with the manufacturers' the Chicago Packard Co., last week had its name changed to the Chicago Motor Car Co., but it will handle the Packard car exclusively. The company is engaged in building a salesroom and garage at 1615 Michigan avenue and expects to occupy it this fall.

Emile Voight and Gaston Rheims, representing Charron, Giradot et Voight, the French manufacturers of the car which bears those initials, have leased the building to be erected on the west side of Broadway, north of Sixtieth street, New York City. The garage will be used as headquarters for C. G. V. cars, the aggregate rental of which will be $172,000.

According to the petition in involuntary bankruptcy filed last week in the United States District Court by the Motor Garage Company of Buffalo, N. Y., the liabilities are $7,449.82 and the assets $2,443.68. They are apportioned as follows: Liabilities—due in wages, $247.91; unsecured claims against the company, $7,201.91. Assets—cash on hand, $351; stock, $500; debts due on open accounts, $1,554.67; cash in bank, $38.01.

About midnight last Wednesday, George W. Stewart struck a match in his garage at 63 Pearl street, Chelsea, Mass., to see if everything was all right for the night. Immediately a small pool of gasolene on the floor caught fire, communicating to the automobile from which it had dripped. Stewart attempted to put out the fire and was badly burned about the face and arms. Firemen put out the flames, but not until it had consumed two cars, valued at $2,800 each, and done $400 worth of damage to the building.

To "Encourage" Electric Batteries.

An international competition has been organized by the Association des Industriels de France for encouraging improvements in the design of electric batteries and accumulators. Special features to be embodied in the designs are minimum weight, combined with other points, such as facility of examination, simplicity in installing, and, above all, safety to workers or attendants. Designs must be submitted by December 31, 1906, and competitors whose designs are selected must be prepared to furnish to the commissioner before April 1, 1907, actual batteries or accumulators made to their design, for testing, etc. Prizes amounting to 8,000 francs will be awarded in connection with the competition, further particulars of which may be obtained by those interested from the Directeur de l'Association des Industriels de France, 3, Rue de Lutece, Paris.

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LOOKOUT FOR ZAN LOSURE

He Has Built a Car—B'gosh!—and There's No Telling What May Come of It.

Would-be automobilists may now begin to save on their tobacco accounts and other "household" expenses, for it is almost here—that long expected $400 car, that has been looked for most anxiously. Zan Losure, who lives in Van Buren, Ind., is the manufacturer—"not yet, but soon"—who expects to cause a bear panic in the automobile industry. There will be plenty of time to save the required $400 as Zan has promised a dozen of his home folks the first twelve machines that are built, and making "the desk with a banister," which will constitute a feature of the car, will consume time. The news came out last week in a paper in Losure's home town. It says:

"In about a week Zan Losure will have out his new auto which he has been building for some time, as he could spare the time from his planing mill business.

"It is equipped with a ten horsepower Galesburg engine, the same engine that is used in the Gale automobile which sells at $1,000. He has tested the engine and it works perfectly. The machine will be upholstered in leather, finely painted, will have all the accessories that go with any machine. If the auto meets expectations he has orders for twelve similar machines for Van Buren people.

"The auto will be a combination, single or double seated. A desk, with a banister, 3x3½ feet, will be furnished which can be used when only one seat is used.

"Mr. Losure has offers from different parties to form a partnership and finance the business if the trial machine is satisfactory in every way. In such event buildings will be erected and machinery installed for the factory so that the machines can be made with dispatch.

"The machine can be built and sold at $400 which is away below the cost of other makes for a two-seated auto. We trust the venture will be a success in every way."

Manufacturer Mason Has a Theory.

The Mason Motor Car Company, which has been doing business in Des Moines, Iowa, may move to Altoona, Pa., having received an offer from that city, and E. R. Mason, the head of the company, is considering the change. "I have always had a theory that if a factory were run in a country place so that each working man could have his own home, with a chance to invest his money in the project, it would prove a success," Mr. Mason is credited with saying: "Allow no man to work for the company unless he agrees to take just that interest in the company and you will never have strikes. If we remove to Altoona I shall install some such system."

Quakers Elect Officers and Talk Show.

Philadelphia dealers and branch managers are going to make an effort to hold their annual show earlier than last year, judging by the general feeling expressed at a meeting held on Friday last, when the Philadelphia Automobile Show Association was launched. The meeting was held at the Hotel Walton and was largely attended, Chester I. Campbell, who managed this year's Philadelphia and Boston shows, bringing the members of the local trade together. Percy L. Neel was elected president of the new organization and the other officers will be elected at a meeting to be held next Monday, 24th inst. A show committee, composed of W. J. Foss, W. Wayne Davis and W. F. Smith, was selected.

Pump People Developing Eli Engine.

If the present designs of the Moline Pump Company, Moline, Ill., develop to their satisfaction, next season will see a new four-cylinder two-cycle motor, the first of its kind to be placed upon the market. It is said that for some little time, plans have been under way for the adaptation of the Eli farm engine, which is of the two-cycle type, to the purposes of the motor car. A trial engine has been built and placed in a runabout for experimental purposes, which, however, was of the single-cylinder variety. A four-cylinder motor is under way at the present time, which is to be installed in a car as soon as it is completed.

Maxwell-Briscoe in Buffalo.

The Maxwell-Briscoe Motor Company is establishing at 24 Goodrich street, Buffalo, a special agency for handling Maxwell cars in that city and adjacent territory. This is being done in pursuance of the policy of the company of making such branches stand wholly on their own foundations and yet keeping them in a sense a component part of the parent institution. The new agency will be known as the Maxwell-Briscoe Buffalo Company and the active manager will be C. G. Bleusdale, former general traveling representative of the Tarrytown factory. The Buffalo building will be fireproof and thoroughly modern.

More Room in Locomotive Plant.

The American Locomotive Company, which makes the Berliet car in this country, is erecting a three-story addition to its plant on Kinsley avenue, Providence, R. I. The addition measures 64x154 feet and will be of steel frame and brick construction, uniform with the building of which it is to be an enlargement. The new portion of the building will be used to provide additional space for the automobile construction work.

Croninger Returns to His Desk.

R. Harry Croninger, sales manager of the Dayton Motor Car Co., has returned to his office after a serious illness. He was absent about two months which were spent chiefly in Kentucky.

CUBAN REBELS WERE WISE

They Killed Business but Have so Sown that Peace Will Bring a Rush.

Adolph Goodman, manager of the Insular Transportation Co., Havana, which succeeded to the business of the West Indies Transportation Co., and which conducts a bus line and does a general automobile and tire repair business in Havana, was in New York this week. He stated that the insurrection now going on in the island has practically killed business there but that he looks for an unusual rush of tire repairing as soon as the trouble is over.

It appears that when the rebellion first became serious the government took possession of all the public and private automobiles in Havana and used them for conveying ammunition and officers to various points of defense. The insurrectos soon grew wise to the damage that this automobile service was doing to their cause and as a result all the roads within a radius of 25 miles of Havana, according to Goodman, are now liberally strewn with tacks and other tire destroyers. As the Insular Transportation Co. has the only tire repairing plant in Cuba, Goodman expects that the present loss will be quickly turned to profit once the existing unpleasantness is settled.

Will Make Vinet Rims in America.

It has just come to light that not a few enterprising American manufacturers did not let grass grow under their feet once the victory of Szisz in the Grand Prix brought the removable rim into the public eye, for some half a dozen or more are said to have immediately undertaken negotiations for the making of the Vinet detachable rim in this country.

E. V. Hartford, president of the Hartford Suspension Co., was the succesful bidder, however, and will manufacture and market the rim in connection with the Truffault-Hartford shock absorbers. It will be some time before the first rims will be ready for delivery but in the meantime orders are being booked, to be filled in the sequence in which they are received.

Extent of American Importation.

According to the government report 669 cars of forty different makes were imported between January 1st and September 1st, 1906. Eight importers licensed under the Selden patent brought 427 cars into the country during that period and thirty other importers brought in 242 cars. Of this total, 53, representing 18 different makes were imported for the first time. In addition to the new machines 208 were brought into the country by individual users, though many of these were re-entries. No values are given.

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Your Tire Equipment will pretty surely be of the Mechanically Fastened Type

But

beware of the style that needs no help to detach—that "comes off of its own accord," or near enough so when it is "demonstrated,"

Heed Safety

The Fisk Mechanically Fastened Tire

IS BUILT NOT ONLY FOR THOSE WHO WISH TO AVOID EXASPERATING TIRE TROUBLES AND WHO DESIRE COMFORT AND ECONOMY IN TIRE MAINTENANCE, BUT FOR THOSE WHO WISH TO BE PROTECTED AGAINST ACCIDENT

ITS POSITIVE RIM LOCKING DEVICE MAKES IT ACCIDENT PROOF. It absolutely cannot come off the rim of its own accord whether ridden inflated or deflated; yet its flat rim insures great ease of detachment if ever necessary.

THE FISK RUBBER CO.

CHICOPEE FALLS, MASS.

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Location of the Valves.

In this year's practice and in the indications of the 1907 designs, it is plainly evident that the arrangement of the valves in the heads of vertical motors, is rapidly gaining ground. Furthermore, from various standpoints, it would appear to be particularly advantageous, both in respect to its advancement of the thermal action of the motor and mechanically, although in regard to the matter of actuation, it may be open to question to a certain extent. With the air-cooled type of engine, it is practically necessary, since it is desired to expose as much as possible of the cylinder wall surface to the cooling draughts of air. With the more prevalent type, on the other hand, there is no compulsory need of adopting this, or any other location, and hence there is a greater diversity in the arrangement of current design.

The adoption of the cylinder head type of valve is a reversion to a method of earlier days, and one which still finds considerable favor in stationary practice. Theoretically, it serves the purpose of delivering the gases directly to the combustion chamber without diverting them from their course in any way, similarly serving the exhaust. It permits the employment of a far simpler casting, and lends itself well to any of the various methods of cylinder construction, absolutely independent of the nature of the cooling system. It simplifies the contour of the combustion space, eliminating all stresses at the time of explosion except such as are normal to the walls, rids the cylinder of pockets and angles, and allows the clearance volume to be handled in terms of bore and stroke, which, not to mention the greater ease of calculation which it entails, greatly reduces the cost of construction.

However, it possesses a certain drawback in that it must of necessity increase the total length of the cylinder, and also because of a certain natural awkwardness in actuating the valves. To this end, it is necessary to employ some form of rocker shaft with walking beams, to use offset tappets, or to mount a cam shaft upon the heads, in order to obtain a direct movement for opening the ports. All three of these methods are in use, the first being in greater majority. For this, it frequently is possible to make a single shaft, connecting rod and beam serve both inlet and exhaust valves, in which case, of course, the mechanism must act both in tension and compression, under the guidance of a two-lobe cam. In many ways, the use of an elevated cam shaft is better than this, in that it simplifies the connections between the two ends of the motor, reducing the actuating mechanism to a single shaft or chain, where in the other arrangement, an oscillating rod must be used for each cylinder, and in some cases two. The greater length of these parts under this system, and the increased danger of derangement owing to the exposure of a greater amount of mechanism, constitutes a disadvantage. Yet, it may be argued against the positioning of the cams on the heads, that it involves a diffusion rather than a concentration of parts, and besides being unsightly, places them in an exposed position and, hence, renders them more or less liable to injury from external sources.

Where off-set valve pockets are employed it is, of course, perfectly possible to use direct acting valve gear, and of the simplest nature. In a way, the engine as a whole is made more compact, its center of gravity is brought nearer to the crank shaft, and in many other ways, advantages are to be found. Thus, for instance, the cam shafts are enclosed in the crank case where they are accessible for lubrication without extra feeds of a troublesome nature, they are protected, out of the way, readily and positively driven and at the same time can be regulated with a nicety which is far more difficult in more elaborate mechanism.

In a word, there are plenty of advantages to be gained by either arrangement, some of them, however, common in intent and result. Yet since it is the entire engine which is to be considered in making a choice, rather than a single group of parts, and since in its relation to the internal performance, the cost and factor of perfection of the principal component, the cylinder, and also in relation to its own action to a certain degree, the head type of valve seems a better servant of the needs of the case, and appears well fitted to entirely replace the other type. And as already indicated, the makers are growing to favor it more and more, new examples coming to light at short intervals, many of them exponents of all that is best in motor construction. So that there is little reason to doubt that next season will mark a pronounced decline of the other methods of arrangement, one and all, in favor of this type.

The Matter of Metal Wheels.

Whatever may be the question as to the value of high speed racing as a means of developing motor cars at this stage of design, it cannot be doubted that it has accomplished much in the past, and that it yet may be able to solve one or two points which are undecided. For, while the construction of purely racing machines cannot have great influence on the proportioning of parts intended for the more ordinary purposes of touring machines, yet for those portions of the machine which are still open to a certain amount of question, and for which the decision rests not so much on dimensions as upon choice of materials and the resistance to sudden shock of structures, the open competition entered by manufacturers either directly or indirectly, has much yet to accomplish.

Thus, for instance, while the greater portion of the mechanism of the average car

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now is composed of various metals, the wheels still remain of wood with metal hubs, the artillery type apparently being the only one to become wholly satisfactory thus far. Yet the use of wood in a machine of this type, is if not unmechanical, at least unwise, it would seem, and it is to be wondered at that neither the wire wheel, nor the all-metal wheel, both of which are in existence, have been more successful up to this time.

Probably no bit of theory is more delightful to the mechanical mind than that of the tension wheel, so long used with success in bicycle construction and now passed on to the motorcycle. It has been utilized in carrying heavy loads for various other purposes with good results, has been employed more or less on motor vehicles of standard pattern. Yet it appears to be going out rather than coming into fashion. Just why this should be is something of a mystery, notwithstanding the satisfactory working of the artillery type. For although the latter seldom if ever appears to give trouble in service, still it is a perpetuation of an old form, where in almost every other respect, revolutionary changes have altered the status of design.

The all-metal wheel, on the other hand, has apparently never been given an extended trial, at least, not in the sense of a season or two of general use, such as has been granted the wire wheel. Yet it possesses numerous meritorious features, not the least among them being its great power of resistance, which should earn for it a place in the regard of the automobile designer.

In the forthcoming Vanderbilt trials the three types will be represented. And the results will, in measure, furnish a new basis of comparison, since the results will serve to increase the average of data obtainable from the results of similar contests in the past. In these, for the most part, the wire wheel has not been a star performer, yet there is always the suspicion that in the design of metal wheels for racing cars, the dimensions have been skimped. And this fact, taken together with the factor of error due to the personal equation of the driver might serve to throw out many examples where failure, partial or otherwise, has been recorded, in the face of new successes.

It is noticeable that the controversy over the merits of the various methods of casting the motor cylinders has not been revived in connection with the 1907 models. After having duly set forth the merits of the type he had chosen as against the faults of all others which were to him on the outside, each maker has stood to his colors. That is, the majority have done so, for there have been defections from the ranks and the instances in which this has been true seem to have marked a return to the twin cylinder casting.

In one case, this has been reached by gradual steps. At first this maker was a strong advocate of the independent cylinder with an independent jacket. This was adhered to through several models, then heads cast in pairs were adopted, the body of the cylinder being an independent casting. Now the cylinders are cast in pairs the same type of jacket having been retained all along. This appears to be an exception, however, as very few makers appear to have abandoned the type that they supported so strongly a year ago when the advantages of the different methods went up for review. Whether or not the subject comes up for discussion again, makers will doubtless continue to adhere to the form that strikes their designers as best.

Considering the amount of attention which is being paid to the matter of motor design, it seems rather surprising that up to this time no internal combustion motor has been placed upon the market which embodies the multiple-unit principle, that is to say, in which each cylinder is a unit by itself, the multiple cylinder machine being composed of a series of single cylinder motors fastened together.

Despite the general advantages accruing from the use of separate cylinders mounted on an individual base, and the other merits of the standard design, the multiple-unit feature would hold out certain special advantages to the builder to be obtained in no other manner. Thus a standard adopted for the unit cylinder would apply to all motors turned out, whether of one or many cylinders in the assembled form, interchangeability would be increased, with all its own advantages, and little if anything would be lost in the expense of manufacture, since the similarity of the various components would make possible the machining of parts in gangs, where now gang tools are applied to large and complicated parts. Barring perhaps a single exception this idea has never been applied in practice.

NO HORN TOOTING IN PALACE

A. C. A. Adopts New Rule—Other Changes in the Show Regulations.

Horn tooting will be prohibited at the Automobile Club of America's show in Grand Central Palace, New York, in December next.

The rules that will apply on the occasion were made public this week and one of them institutes this agreeable condition, which was first brought to bear in Madison Square Garden last January. The rule provides that all horns, whether affixed to cars or displayed as accessories, must have the reeds removed. It is the most radical of the new regulations, although a sort of censorship has been established by the following rule:

"The committee reserves the right to decline or prohibit any exhibit, exhibitor or proposed exhibit which in its opinion is not suitable for an automobile exhibition. This reservation concerns persons, things, conduct, printed matter, souvenirs, catalogues and all things which affect the character of the exhibition. Exhibitors have the right to distribute catalogues, souvenirs and other matter approved by the committee, from the space occupied by them, but in no other way."

The allotment of space wil be made by the club committee; all applications received up to October 15th will be given equal consideration. Subletting of space is forbidden.

The decorations and signs will be uniform and will be supplied by the official decorators at the exhibitors' expense. No other decorations or signs will be allowed.

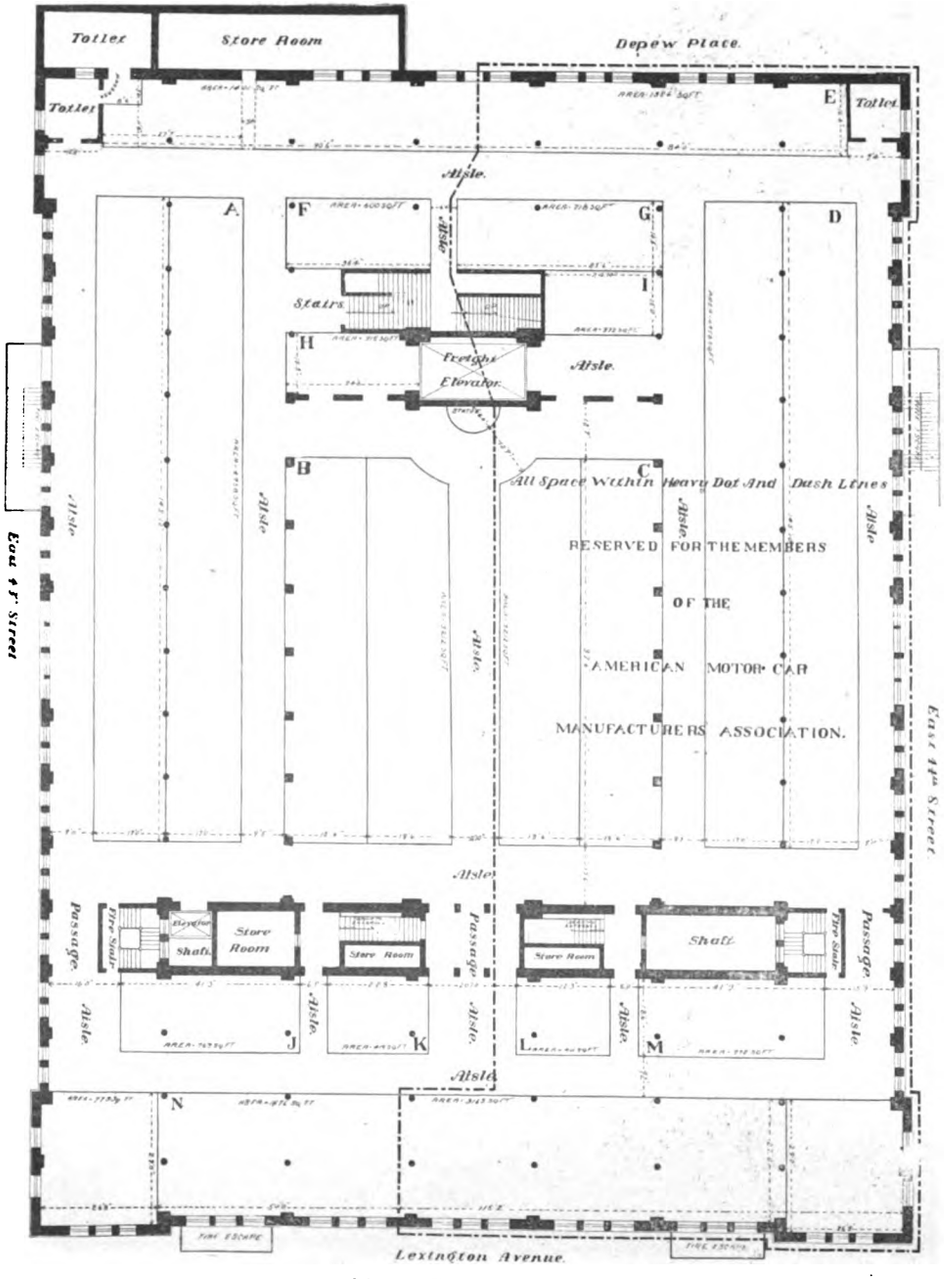
These decorations will consist of denim floor covering with suitable mouldings; use of iron railings for division of spaces; signs with row of electric lights across top (including current for seven days of seven hours); background coverings, draperies, etc., where required; all textile fabrics will be fireproofed.

The general admission fee will be 50 cents, but "trade tickets" in lots of not less than 100, will be sold at 30 cents each to exhibitors, who must bind themselves to redeem at full box office price any such tickets as may be sold by speculators or other persons. Manufacturers, agents and dealers will be admitted free between 10 a. m. and 1 p. m. Exhibitors' passes will bear the names of the persons to whom issued and will be registered and numbered and duplicates will be issued only on payment of $5. No gasolene or other fuel will be admitted to the building and smoking will be prohibited.

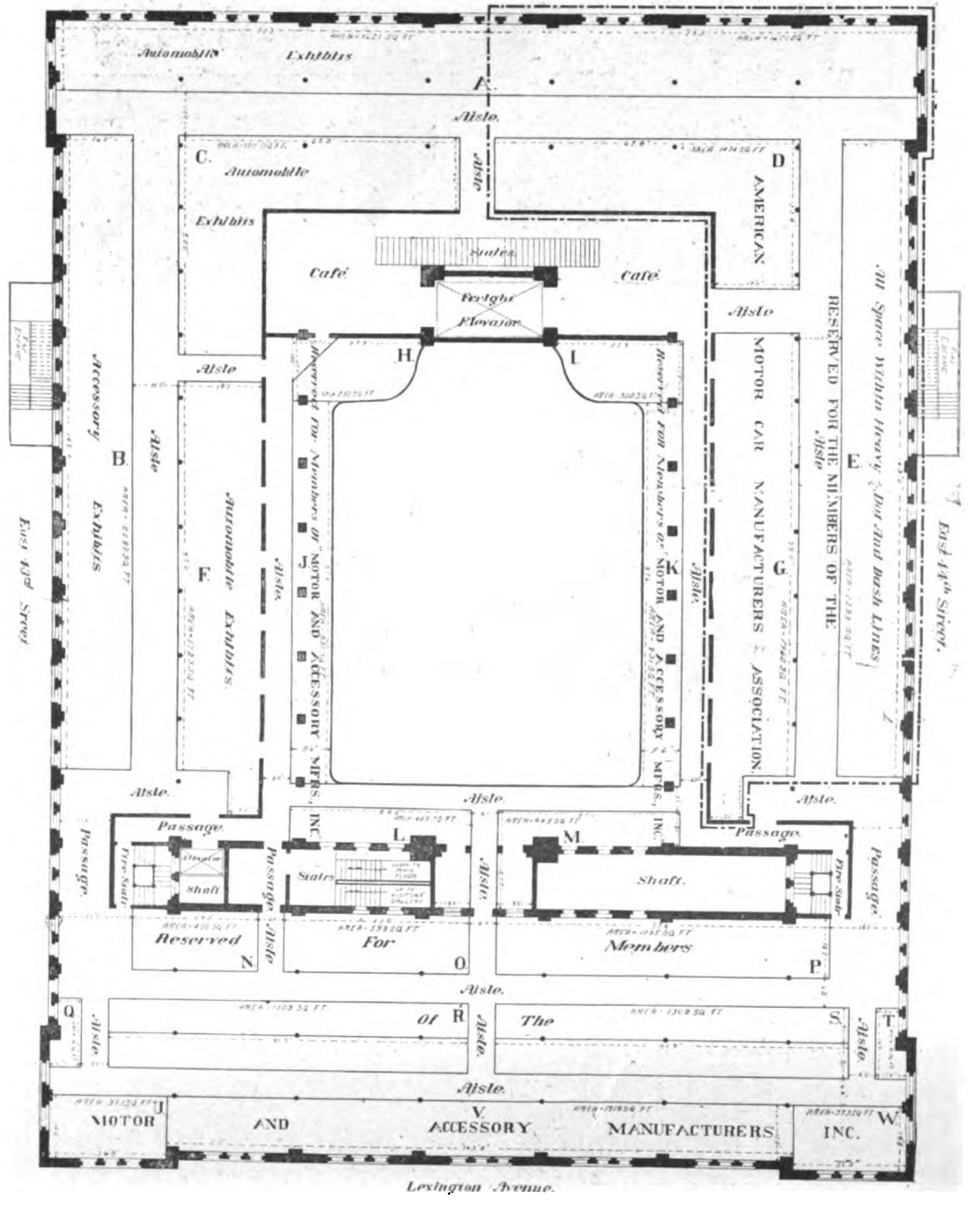
The net profits, as already known, will be divided equally between the exhibitors in proportion to their space rental, and the Automobile Club of America.

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FLOOR PLANS OF THE A. C A. SHOW IN GRAND CENTRAL PALACE, NEW YORK, DECEMBER 1 to 8

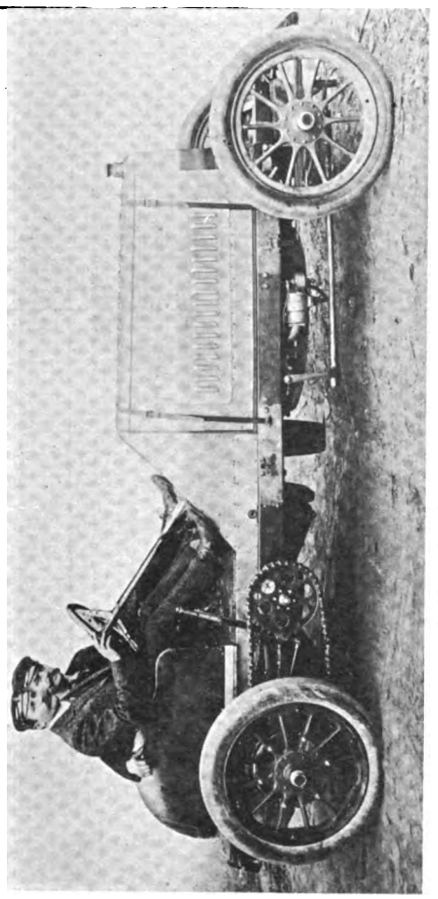


MAIN FLOOR PLAN.

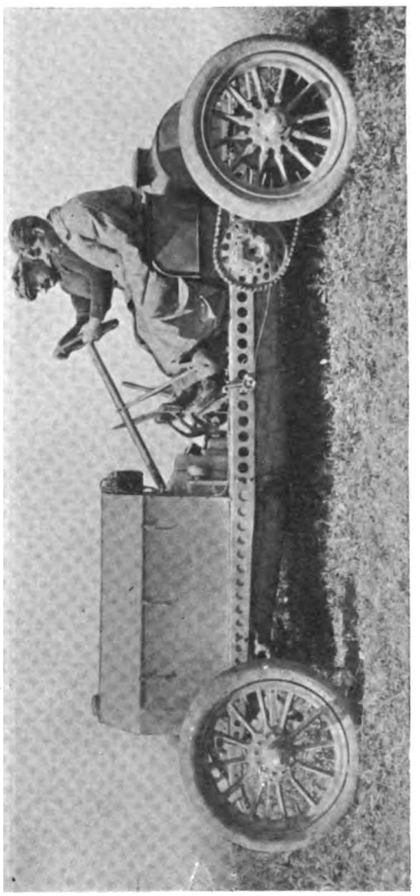


GALLERY FLOOR PLAN.

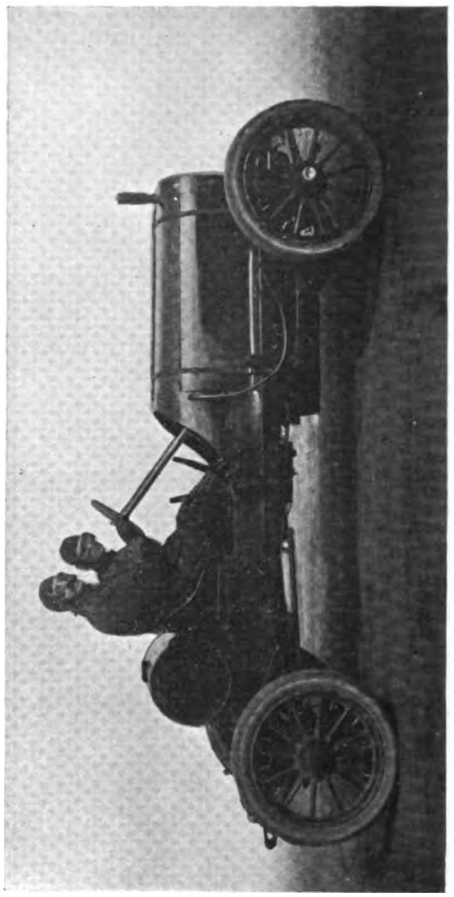
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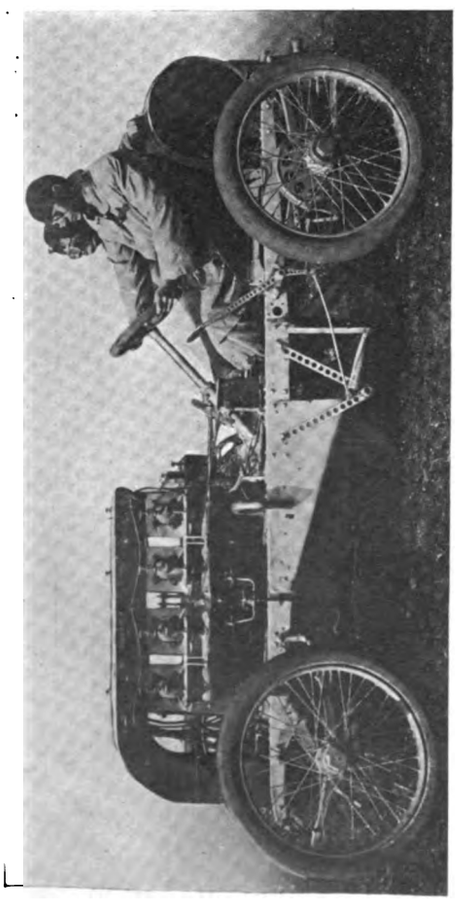
CAILLOIS, 115 HORSEPOWER THOMAS



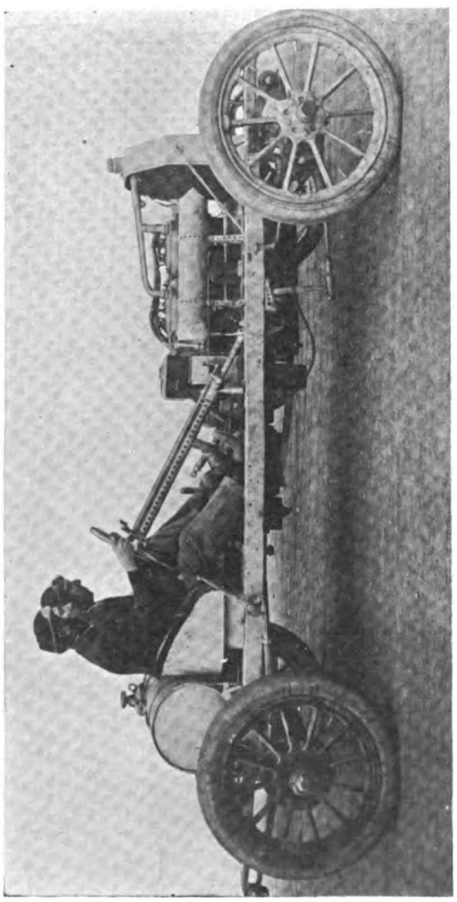
MONGINI, 60 HORSEPOWER MATHESON



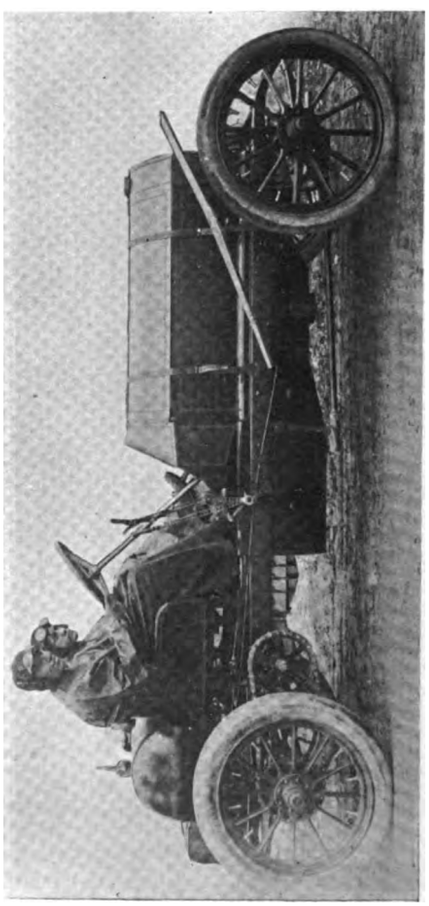
HAYNES, 50 HORSEPOWER HAYNES



BELDEN, 110 HORSEPOWER FRAYER-MILLER



KEELER, 60 HORSEPOWER OLDSMOBILE



ROBERTSON, 90 HORSEPOWER APPERSON

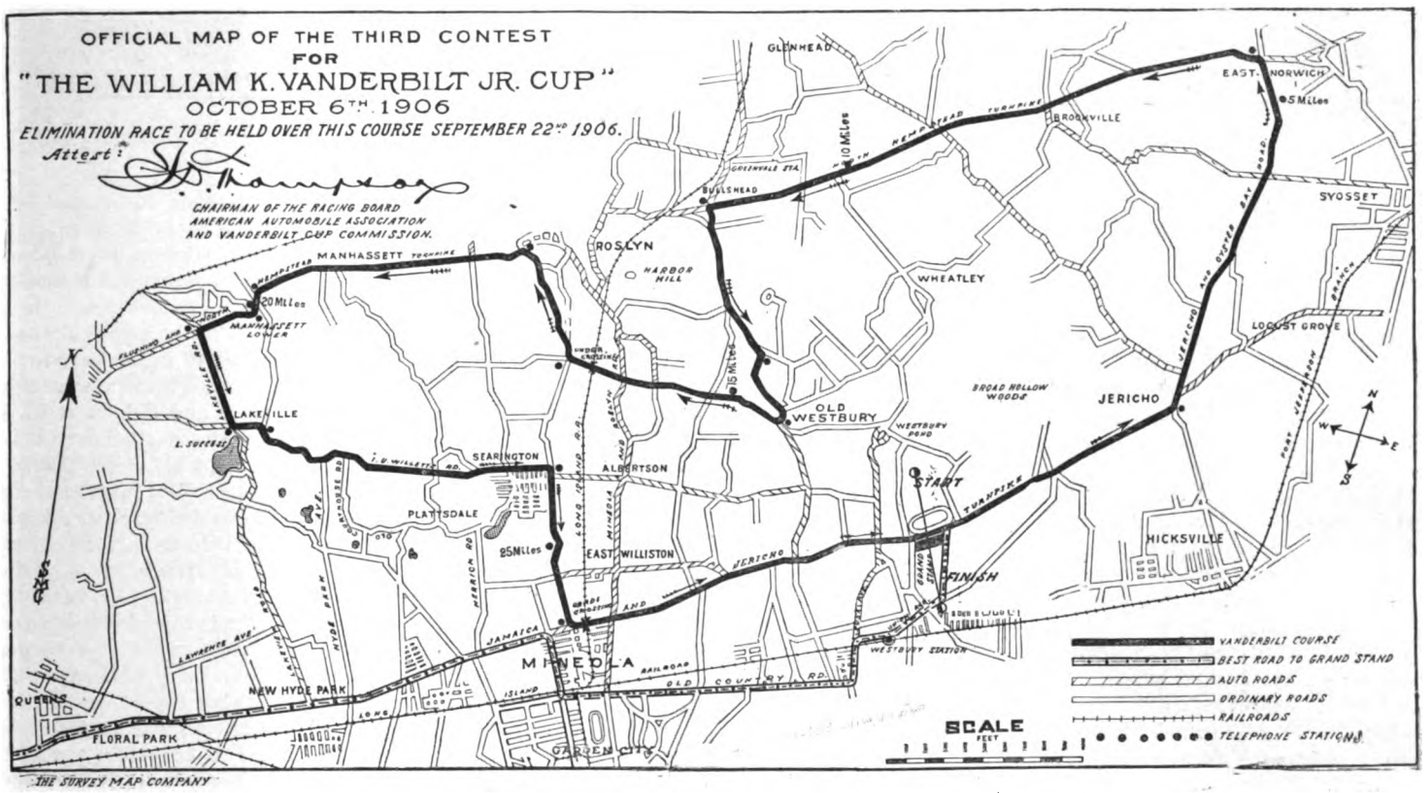
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IN READINESS TO SELECT THE AMERICAN CUP TEAM

THE CANDIDATES AND THEIR CARS.

Start. Driver.	Car.	H. P.	Cooling.	Drive.	Ignition.	
1—Ernest Keeler	Oldsmobile	60	Water	Shaft	High Tension	Accumulators
2—Herbert H. Lytle	Pope-Toledo	120	Water	Chain	High Tension	Accumulators
3—Ralph Mongini	Matheson	60	Water	Chain	Low Tension	Magneto
4—Gustave Callois	Thomas	115	Water	Chain	High Tension	Magneto
5—W. H. Owen	Maxwell	80	Water	Shaft	High Tension	Accumulators
6—Hubert Le Blon	Thomas	115	Water	Chain	High Tension	Magneto
7—Montague Roberts	Thomas	115	Water	Chain	High Tension	Magneto
8—Lee Frayer	Frayer-Miller	110	Air	Shaft	High Tension	Accumulators
9—Walter Christie	Christie	50	Water	Gear	High Tension	Accumulators
10—George Robertson	Apperson	80	Water	Chain	High Tension	Accum. and Mag.
11—Frank Lawell	Frayer-Miller	110	Air	Shaft	High Tension	Accumulators
12—Joseph Tracy	Locomobile	90	Water	Chain	Low Tension	Magneto
14—John Haynes	Haynes	60	Water	Shaft	High Tension	Accum. and Mag.
15—Henri Dolbeau	B. L. M.	85	Water	Chain	High Tension	Magneto
16—E. H. Belden	Frayer-Miller	110	Air	Shaft	High Tension	Accumulators

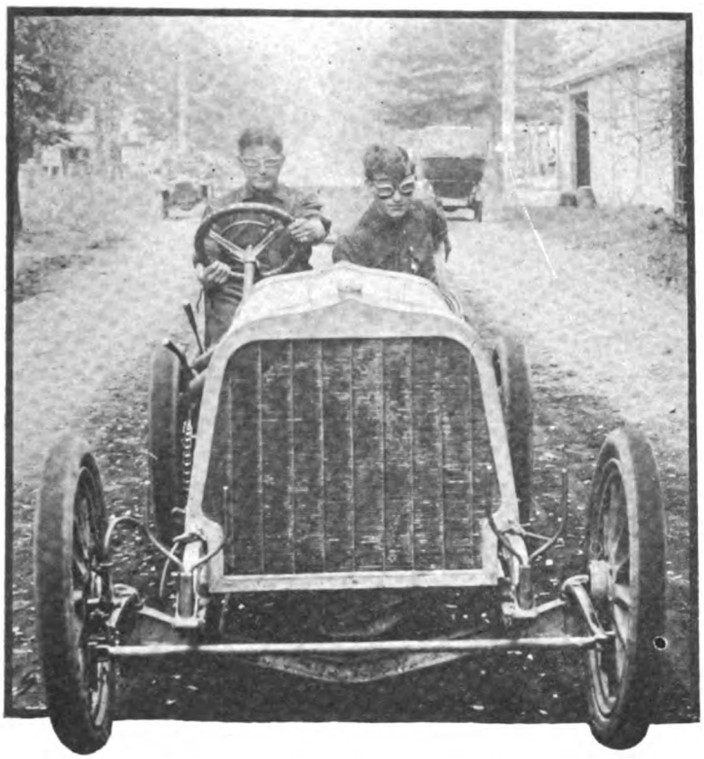
(In deference to popular superstition, there will be no No. 13)



Ernest Keeler, and his 60 horsepower Oldsmobile, will be the first of the fifteen American Vanderbilt cup candidates to be sent away from the starting place at Westbury, on the Jericho pike, Long Island, Saturday morning at 5 o'clock, over the 29.71-mile circuit for the 297 1-10 miles elimination race to select a team of five cars to represent America in the Vanderbilt cup race on October 6th.

This was decided at the drawing for starting positions held at the Garden City Hotel, last Saturday night. The cars will be started at intervals of two minutes. The second car to be sent away in the race will be Herbert Lytle's 120-Pope-Toledo, and thereafter the contestants will be given the word in the following order: Ralph Mongini, 60 horsepower Matheson; Gustave Callois, 115 horsepower Thomas; Wally Owen, 80 horsepower Maxwell; Hubert Le Blon, 115 horsepower Thomas; Montague Roberts, 115 horsepower Thomas; Lee Frayer, 110 horsepower Frayer-Miller; Walter Christie, 50 horsepower Christie; George Robertson, 80 horsepower Apperson; Frank Lawnell, 110 horsepower Frayer-Miller; Joe Tracy, 90 horsepower Locomobile; John Haynes, 60 horsepower Haynes; Henri Dolbeau, 85 horsepower B. L. M., and E. H. Belden, 110 horsepower Frayer-Miller; although since the drawing an accident has eliminated Robertson and the Apperson and there are grave doubts that the B. L. M. will be made ready in time.

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LYTLE, 120 HORSEPOWER POPE-TOLEDO



CHRISTIE, 50 HORSEPOWER CHRISTIE

After the drawing Chairman Jefferson DeMont Thompson announced that the examination and weighing in will take place at Garden City on Friday of this week, from 10 a. m. to 5 p. m., and that all competing cars must report in Garden City by noon on that day. The numbers must be painted on the cars in in some color that contrasts sharply with the color with which the car is painted and they are to be painted on the front of the radiator and on each side of the back of the car. The numerals must be 12 inches in height.

Just who is to blame for the slowness in getting the course oiled and in condition is not apparent, but it is sufficient to say the drivers have been "up against it" since practice was allowed. Several of the stretches on the course have not yet been oiled and there seems to be no oil for the purpose in sight. Several of the roads are deep in dust and even if oiled to-day or to-morrow a heavy rain would play havoc with the course, as the coating of oil would not have time to settle. Even if it does not rain the cars will have to slide through an oil bath at some places.

Work was started Tuesday in putting in the telephone timing stations at every five mile point and the telephones at the bad turns of the course, and several gangs of laborers have been fixing up the most dangerous turns. The fence that guarded the drain near Tracy's quarters at Lakeville was removed and the gutter covered over with heavy planks, which will add several feet to the width of the narrow road at that point. The work of widening the road where Mineola avenue makes a curving turn into the North Hempstead turnpike has made substantial progress. This is the famous "stone wall" turn, so called because a stone wall lines the outside of the turn and would prove very dangerous should any of the racing cars skid very much when being driven around this turn. The high ground will be cut away for several feet. The bad place in the Jericho turnpike, where the left hand turn from Mineola avenue is made, was all filled up and will be rolled and oiled.

The grandstand near the Westbury station on the Jericho pike has been completed and all that remains is to put the chairs in the boxes. The official stand opposite the grandstand also has been finished.

On last Saturday the fastest ride that has yet been recorded was made by George Robertson on his first trip out on the Apperson. Robertson covered the 29.71-mile circuit in 30 minutes and immediately became a favorite. Tracy made a fast lap on the Locomobile in 35 seconds and Lytle and the Pope-Toledo took 37 minutes to cover the course. Frank Sweigert took the Haynes around in 40 minutes and the three Frayer-Millers did 40, 41 and 48 minutes. The first real sensational incident occurred on Saturday last, when the unlucky Walter Christie ran into a telegraph pole and smashed his big front-ender beyond possible chance of repair before the race. Christie will, however, drive a touring car of his own make, but it is not regarded as dangerous.

Only four of the cars were out on the course Sunday. George Robertson again made the fastest circuit in 31 minutes and Joe Tracy made two rounds in the Locomobile, the first in 39 minutes and the second in 33 minutes. Lee Frayer, in the Frayer-Miller, also made two circuits as did E. H. Belden, one of the drivers for the Columbus contingent. Frayer was timed at 38 and 45 minutes and Belden at 42 and 59 minutes. Lytle does not believe in Sunday driving so he kept his Pope-Toledo in the garage at Krug's. Belden gave the big crowd that had assembled at Krug's a scare when he made the turn from Mineola avenue into the Jericho turnpike the first time around. He tried to take the turn at a 45-mile clip and the car skidded twenty feet across the road, and for a moment looked like it might carry a harness shop off its foundations, but the driver got back on the road again and was lost to sight almost before the watchers got through gasping. W. K. Vanderbilt, Jr., took out his 90 horsepower Mercedes and made the lap in 28 minutes, better than a mile a minute, but the cup doner had several of his employees stationed at the dangerous turns with flags, so his ride was made under more favorable conditions.

On Tuesday only six of the fifteen candidates turned out for practice during the early hours of the morning, Tracy, Belden, Keeler, Mongini and Frayer being the drivers who appeared. The last three did not make complete rounds of the circuit. Lee Frayer was the first to appear at Krug's, passing there at 5 o'clock. He came back the reverse way of the circuit

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LE BLON, 115 HORSEPOWER THOMAS



ROBERTS, 50 HORSEPOWER THOMAS

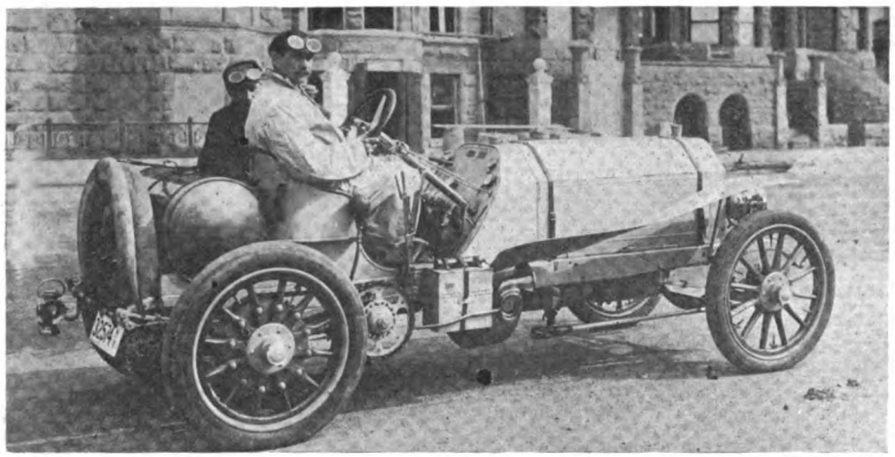
26 minutes later with one of the rear tires punctured. He started out again later but did not make a full lap. E. H. Belden, the second of the Frayer-Miller trio, made two rounds of the circuit in 41½ and 43½ minutes. Ralph Mongini, the big and jovial driver of the Matheson, passed Krug's at 6:05 o'clock, with Tom Cooper in the mechanic's seat. It was after seven when he returned, a stone dislodged by the front wheels having punctured his gasolene tank when near East Norwich. A temporary tank had been sent to him in a touring car which enabled him to get back. It was almost half-past five when Tracy and the Locomobile appeared and 31½ minutes later he passed for the first lap. On the next time around Tracy stopped to give a friend a ride, but notwithstanding the time lost in bringing the car to a full stop, changing seats and starting the car again, he was caught at 31 minutes for the lap, so it is hard to determine just how fast he had been going. Lytle and the Pope-Toledo made one circuit in 41½ minutes, but he stopped at his quarters at Bull's Head ten minutes to tighten a clutch.

Hubert Le Blon, the bewhiskered French driver of one of the Thomas Trio, was the first driver to venture out in the fog and he made a slow round, time being lost in replacing spark plugs. The Thomas camp is, by the way, the most interesting one on the course and to a stranger it would appear anything but American. There is a host of mechanics, most of whom are French, two of the drivers are French and there is a continual jabber of patios going on all the time, several interpreters being required. In fact, the entire outfit looks "Frenchy." The Frenchmen have the finish of the elimination race already "doped out" to their satisfaction. It will be "Thomas 1, 2 and 3," they aver, and if Roberts is close up on the last lap, one of the foreigners said on Tuesday night, that they will let the American finish first, contenting themselves with second and third places. That is the "dope." On account of the fog none of the other cars made extra good time Tuesday morning, the best recorded being Ernest Keeler's 38 minutes.

One of the worst accidents that has happened on the Vanderbilt cup course occurred yesterday morning when George Robertson eliminated his Apperson from the race, smashed the car to pieces, with injury to both himself and Arthur Warren, his mechanic, who was with him at the time. The accident took place on the old Westbury road about half a mile from the hairpin turn. He had made the first round in 30½ minutes and intended to do better the second time. A number of people had gathered at the hairpin turn at Old Westbury, and when Robertson and the Apperson passed there he was going at the rate of sixty miles an hour. Shortly after that the accident occurred. Just how it happened no one knows, but the most probable account is that the steering gear went wrong, although the road is very dusty at this point and it may have been that he became blinded by dust. Anyway, the big car that has been doing such consistently fast work during the practice skidded off the road, struck a tree and the impact was sufficient to turn it completely around, when it crashed broadside against a telegraph pole and wound around it as if it had been a piece of wire, the radiator touching the rear axle. Robertson and Warren were both thrown out and rendered unconscious and the first intimation of the accident was when one of the contestants reached the scene of the disaster a few seconds later and crowding on all speed he rode to Mineola and summoned medical aid. A doctor was rushed to the scene, where Robertson and Warren were just beginning to revive and the doctor made a cursory examination. Herbert Lytle, who had seen there was trouble when he came around the first time, hastened to his camp and drove a touring car to where the men lay and rushed them to the Nassau County Hospital, where it was found that Robertson had broken his collar bone and Warren both his wrists. Both men were resting easily last night. The car was as complete a wreck as has ever been seen and everything that was left of it except the engine and the frame was carried away by souvenir hunters, who flocked to the place as soon as the news spread, even the broken steering wheel disappearing. The great frame doubled around the pole like a jackknife and was so

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firmly bent that when it was pried apart it fell in two pieces. All that was left of it was the motor and the tires and the former was damaged somewhat. The theory was advanced that probably a puncture had caused Robertson to lose control of the car but on examination this was found to be not the case. A small nail was found imbedded in one of the tires, but it had lost but little wind. It was a sad blow to the Apperson hopes of winning the race, likewise an expensive one, for in the twinkling of an eye several thousand dollars' worth of splendid mechanism was reduced to a pile of junk.



TRACY, 90 HORSEPOWER LOCOMOBILE

Another serious accident was narrowly averted during practice hours yesterday morning. Quite a crowd had gathered at Krug's corner at Mineola and when Montague Roberts took the right angled turn at nearly full speed, his big Thomas car skidded dangerously across the road and almost ran into a crowd on the opposite side. Had the crowd been less agile in scattering, no doubt several would have been injured, if not killed, and it was especially fortunate that there were no women or children in the crowd.

To those who are "looking for things to happen," or in other words, accidents, the two places that seem to present the greatest possibilities are the hairpin turn at old Westbury and the right-angled turn at Krug's corner, Mineola. The hair-pin curve, near where Robertson's accident of yesterday occurred, is where the road practically doubles itself and as the course is not extra good at that point, there will surely be some hair-raising "skids" if nothing worse. The right angle turn at Krug's is equally dangerous, for it is an absolute right angle, approached by straightaway stretches and there is little doubt but the drivers will try to make up lost time on the back roads at this point. The man who falters or fails to make the turn may never remember it. To those who would see the cars climb up a hill at a mile a minute gait and fairly bound down the other side the summit of Manhassett hill, one of the highest points on Long Island, will present an advantageous point of view.

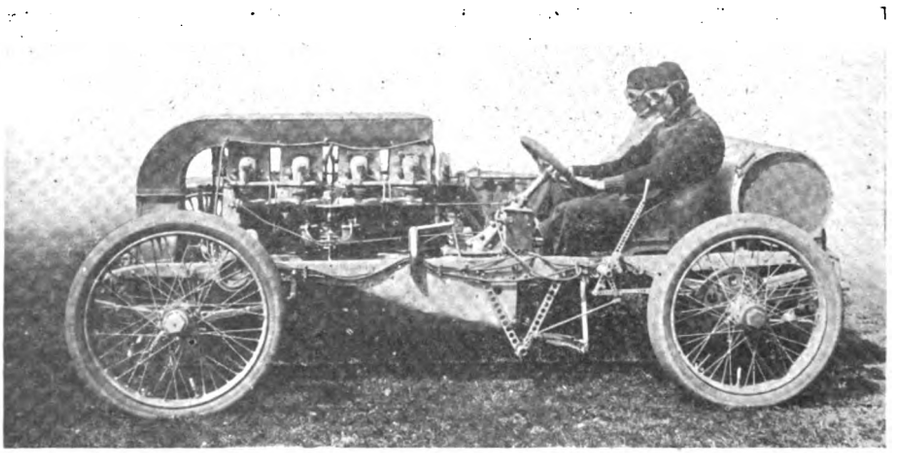
Neither the Maxwell nor the B. L. M. cars had arrived on the course at Wednesday noon and although the former may get around in time for the weighing in on Friday it seems more than likely that the makers of the B. L. M. will not appear in time to get even a run for the $1,000 entrance fee they had to put up.

All the cars in the elimination race will be equipped with Diamond tires, and the Diamond company has made big preparations of a sort worthy of a big company.. Fifty-two tire experts from the factory at Akron, Ohio, arrived in New York in two special Pullmans on Monday night and went out to the course the following morning. Eighteen of these men went to France in 1905 to look after Lytle, Dingley and Tracy in the Bennett cup race and most of them had experience in last year's Vanderbilt race. Eight tire stations will dot the course and the Diamond people have a White steam wagon already "doing duty" and going quickly to wherever occasion requires.

Naturally, all manner of rumors are beginning to emanate. One is to the effect that some of the American cars are fitted with foreign parts and another to the effect that W. K. Vanderbilt, Jr., will drive a Mercedes car as a member of the German team for his own cup. The statement that Vanderbilt would resign as referee and would drive in the race appeared in several daily papers this week and seemed so improbable that the Motor World asked Chairman Thompson's office for a verification of the report. At 6 o'clock last night Mr. Thompson telephoned that the entry had not been received at his office and that the story seemed to him like a newspaper fake. Asked if he had any idea whence the report originated, Mr. Thompson replied: "Most certainly not through the racing board of the American Automobile Association."

The Vanderbilt committee was tendered the use of a Corbin car last week to be used as the official car and it went into commission last Saturday. It is a brand new car, finished in gray, that was placed at the disposal of Mr. Thompson and his associates.

Of course, there is much speculation as to who will win the elimination race and many bets have been recorded. As has been said before, the Thomas men have picked their three cars to finish, one, two and three, and there is no denying that their prospects are A-1, but the wise ones say "Look out for Tracy." Those who have been around with Tracy during practice spins say that not once has he let the big Locomobile out to its limit. As Tracy has thus far made the second best recorded time, and is a skillful, careful driver and has had previous experience in big races, the admonition and his probable chance of winning the race seem very good. Lytle has equipped his Pope-Toledo with a Jones speedometer and several times the needle has been driven around to the limit, which denotes 100 miles an hour, and as Lytle got about the "finest" when Bert Dingley, who won last year's elimination, was named as his mechanic, his chances look well.



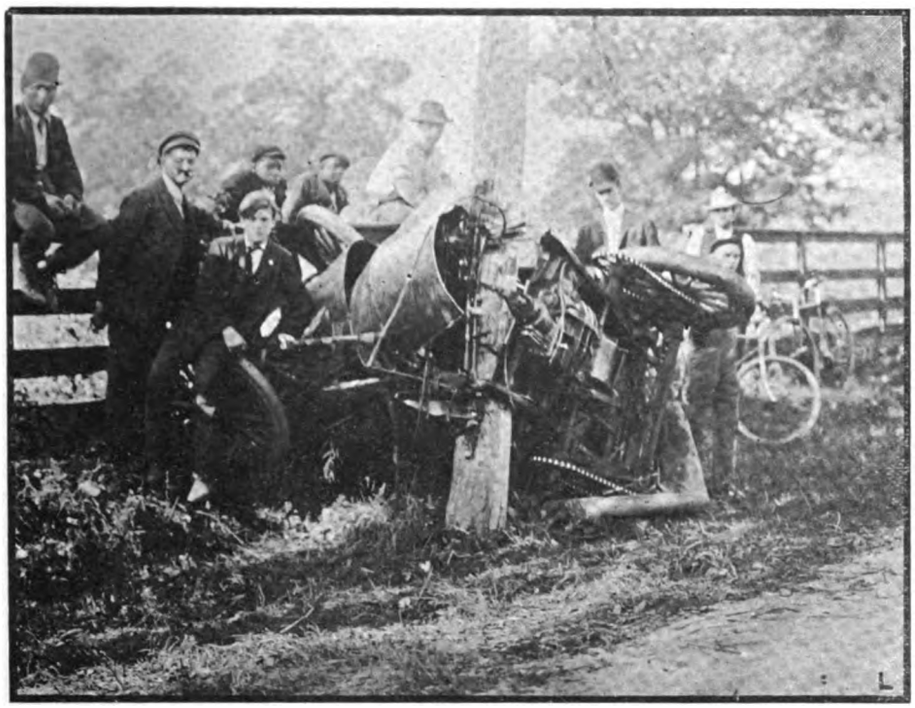
FRAYER, 110 HORSEPOWER FRAYER-MILLER

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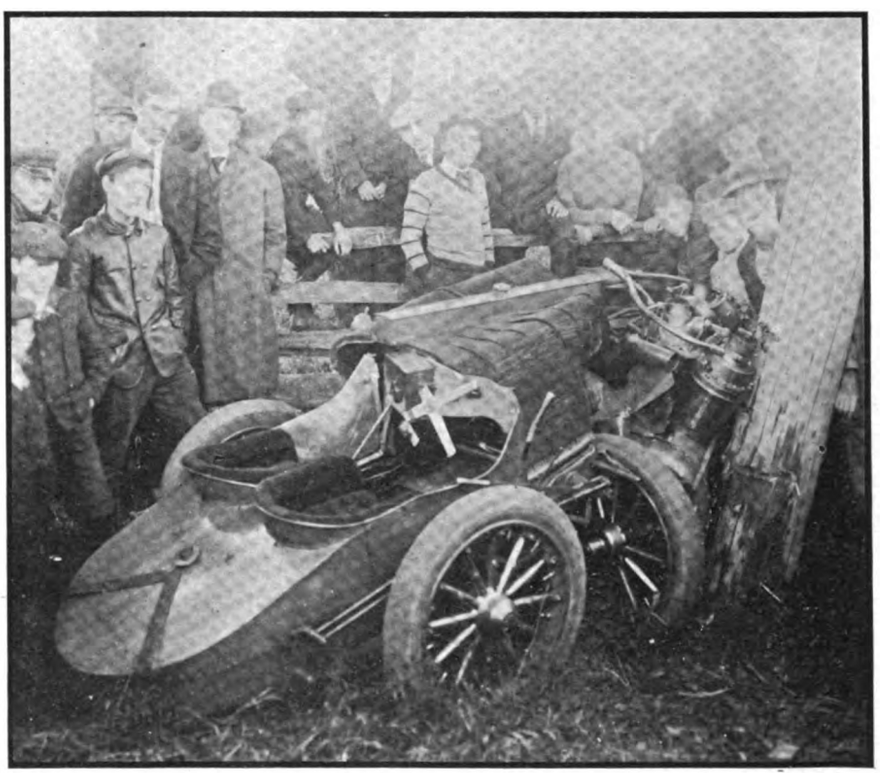
For the first time a book is being made on the result of both the elimination race and the cup race proper. Richard H. Doggett, whose regular occupation is that of commissioner at the horse racing tracks, is laying odds on the result at the Coney Island Jockey Club, and that many chauffeurs, helpers and others who think they can pick the winners will "go broke" on the result, goes without saying. One of the biggest bets yet recorded was made by Jesse Lewisohn. The noted plunger bet $1,000 that Tracy would win the race on Saturday. He got odds of 3 to 1. When the last odds were posted neither the Apperson nor the Christie had been eliminated. The bookmaker's "line-out" follows:

	Win.	Place.
Thomas entry (three cars)	1	2-5
Lytle (Pope-Toledo)	2	3-5
Tracy (Locomobile)	3	1
Frayer-Miller entry (three cars)	3	1
Christie (Christie)	4	1
Owen (Maxwell)	5	2
Mongini (Matheson)	6	2
Dolbeau (B. L. M.)	10	3
Robertson (Apperson)	15	5
Haynes (Haynes)	20	6
Keeler (Oldsmobile)	20	6

Nearly all the American contenders have had constructed special buildings and the locations of these follow: Matheson, Garden City; Maxwell, Jericho pike near Westbury; Locomobile, Lakeville; Christie, Beekman estate on Jericho pike; Frayer-Miller, Holman estate on Jericho pike near Mineola. The quarters of the other American cars are situated as follows: Pope-Toledo, Bull's Head Tavern; B. L. M., Westville; Oldsmobile, Westbury; Haynes and Thomas, Krug's Hotel at Mineola; Apperson, Williston estate, and Matheson, Porrier's, Garden City. Of the foreign cars the Itala and Fiat camps are at Porrier's, Garden City; Keene (Mercedes) at Cedarhurst, and Jenatzy (Mercedes) at Mineola. The Clement-Bayard and Panhard are both at Mineola, the former at Johren's hotel and Heath's car at his own cottage. The Darracq camp is at the Glenwood hotel and the Lorraine-Dietrich quarters on the Charles Raoul estate. The Hotchkiss is at Garden City.



THE WRECK OF ROBERTSON'S APPERSON



THE ACCIDENT TO CHRISTIE'S RACER

One of the features of the three Thomas cars entered in the Vanderbilt cup race which goes to show the care and minute attention to even the smallest details which has marked their construction, is what is known, for want of a more technical term, the "dog-cutter."

This consists of a convex V-shaped piece of wood which is fitted to the cross steering rod, extending almost its entire length. The apex of this wooden bar is brought to a sharp cutting edge and the whole is bound to the cross rod with copper wire.

With the "dog-cutter," however, the keen edge, aided by the impetus caused by the great speed of the car, is sufficient to cleave the animal from one end to the other, reducing to a minimum the jar and strain.

In descriptions of the Haynes Vanderbilt cup car which have appeared, it has been stated that the oiling system employed consisted of a McCord mechanical force feed oiler, "but that other means of oiling would also be fitted before entering the race in order to guard against accident." This latter statement the makers of the Haynes are at pains to correct. They say that the 1907 model McCord oiler built by the McCord Co., will be relied upon entirely, the only change taking the form of an auxiliary supply tank to feed the oiler itself.

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How to Treat "Chauffeur's Spine."

Scrub women have "housemaid's knee," literary persons have "writers' cramp," tunnel workers have the "bends," decorators have "painter's colic," and so on down through the long list of afflictions coupled with following special vocations. It has remained for the automobile to produce "chauffeur's spine" and for that staid old arbiter of things medical, the London Lancet, to spread broadcast the discovery. The symptoms are described as a persistent acute pain in the hip which becomes so intensified by pressure that the sufferer is unable to lie on the side affected; a dull, aching pain across the loins, inability to move the leg, and such tenderness of the leg that even the weight of the bed clothes causes intense suffering.

Drawing the finger across the sole of the patient's foot is said to cause great pain and "cause him to cry out loudly and draw up his foot suddenly"—a movement he was quite unable to perform voluntarily. This new ailment is thought to be due to the incessant jarring and vibration to which the driver is exposed and it is added that motorists generally are subject to it. Confinement to bed with the free use of aperients and a curative consisting of 10 grains of iodide of potassium with 40 minims of tincture of hyoscyamus to the ounce is given every four hours for ten days, while the patient is kept on a milk diet during the same period, is said to constitute the treatment given the first sufferer.

To Open New Clubhouse.

The New Jersey Automobile and Motor Club will open the new clubhouse at Broad and Chestnut streets, Newark, in about three weeks. The house committee will arrange an interesting program for the event and an automobile parade will probably be a feature of the afternoon. The clubhouse is being thoroughly renovated and will present a neat appearance. C. L. Schweitzer, formerly with the Essex County Country Club, has been engaged as steward and he will arrange a restaurant and café on the lower floors and will cater to the members and their friends. The main floor will contain the reception room and parlors, while the second story will be divided off into a billiard and smoking room. The offices of the secretary and board of trustees will also be located on this floor, together with a woman's reception room.

Because the Automobile Club of San José, Cal., has done little or nothing for the sport, and in fact, has not held a meeting since last April, several dealers and owners have formed the Santa Clara County Automobile Club. George Polhemus has been chosen president, and Joseph Faull secretary. The directors are Leonard Peacock, J. S. Williams, Joseph Henry, Frank Martin, J. R. Chance, Joseph Faull, E. P. Lion, C. H. Anderson and George Polhemus.

The Leaf on the Lamp.

"Shortly aftear I bought my first car," said a New York motorist at an impromptu experience meeting, "I had one of the worst frights that has ever come my way. That was about the time there was a great deal of talk about the danger of automobiles to the public, and I had had very little experience in driving. It was before the time monstrous searchlights came into use and I had my car fitted with a pair of acetylene lights that were fairly good, but nothing extra. They showed me where the road was and the outline of any large object that might be in the path, but they were not strong enough to light up the way with distinctness.

"I was riding along one night over a very dark road and feeling pretty nervous about it, too, when suddenly there loomed up in the path of the light a dark object, the outlines of which I could not distinguish. I pulled up to the side of the road and it vanished. Well, I repeated that performance once or twice more, and each time the object, which looked like a phantom dog, vanished as I turned aside. I had not been drinking and finally came to the conclusion that there must be some truth in the ghost theory. I got so nervous after awhile that I got ashamed of myself and I stopped the car and, picking up a heavy wrench, went ahead to reconnoiter. I went up the road about a hundred yards, but could discover nothing, and retraced my steps to my car. As I got nearer I discovered one of the lamps shining less brightly than the other and I investigated. Imagine my surprise and relief to find that a big opaque leaf had stuck to the glass. This had caused the phantom-like shadow and the reason I had not noticed the "spook" when I pulled to the side of the road was because of the checkered background of the shrubbery at the roadside. That experience cured me of feeling shaky when driving at night."

How the Law is Obeyed.

Because it is next to impossible to cover the portion of the Swiss Canton of Obwalden which lies in the path of the ordinary tourist, at the statutory rate of six miles an hour, motorists are accustomed to stop for lunch on the way, which usually brings them within the law's requirements, as all comers are timed only at the border lines. The restricted territory lies on the line of the Brunig Pass.

First Arrest for Horn Tooting.

So far as is on record, the first case of its kind was recently tried in Fort Dodge, Iowa, when Mayor Bennett arrested and fined an automobile driver in that city for "disturbing the peace" because he used a siren horn on his car. A local paper, in commenting on the fact said, "The siren whistle sounds like a fragment of a calliope selection and is really preferable to the 'honk, honk' of the horns commonly in use."

New York's Accident Statistics.

New York is now credited with having no less than 16,000 motor vehicles in constant use—probably more than any other city in the world, and in view of this fact, it is very interesting to note that the statistics of the coroners' office do not bear out even in small measure, the great hue and cry raised against the automobile as a destroyer of human life. During the first three months of the present year the horse proved most deadly as a slayer, for no less than 18 fatilities are credited to it; next came the surface railways with 15, and then the subway with 7, steam railroads and the elevated roads with 6 and the motor vehicle with the same number. From April 1st to July 1st, the horse and the surface railway were on a par, each being credited with 23 deaths, the subway was responsible for 3, steam railroads 6, the elevated railways 1 and the motor car 5, so that in this unwelcome role it appears far less often than its maligners are wont to make out.

What the Bible Says.

Some one has found a hint, as some one always does when there is a new invention or discovery, of the automobile in the Bible. It is in the vision of Nahum, the Elkoshite, concerning the burden of Nineveh. In the account given by this seer of the military muster and array of the Medes and Babylonians against the doomed city of Nineveh, the mistress of witchcrafts, when "the people in the midst of her were women," the Elkoshite has this remarkable verse: "The chariots shall rage in the streets, they shall jostle one against another in the broad ways, they shall seem like torches, they shall run like the lightnings." A variant of the word "jostle," which the original Hebrew will, it is said, equally well or better bear, is "pass swiftly, without particular purpose, to and fro," a rendering which brings the cars of the Hebrew prophet into, perhaps, still closer connection with the motor cars of the present day.

Motor Cars for Mail Delivery.

Kansas City is to follow the lead taken by other cities and equip its post office department with automobiles for the collection of mails. The postmaster received an order from the department at Washington last week to advertise for bids for the use of two automobiles and drivers to serve four years after October 1st. The order requires that the cars be as good as new, or new, and they are to be at all time subject to the postmaster's direction. The two cars will do the work that is now being done by four wagons and twice that number of horses.

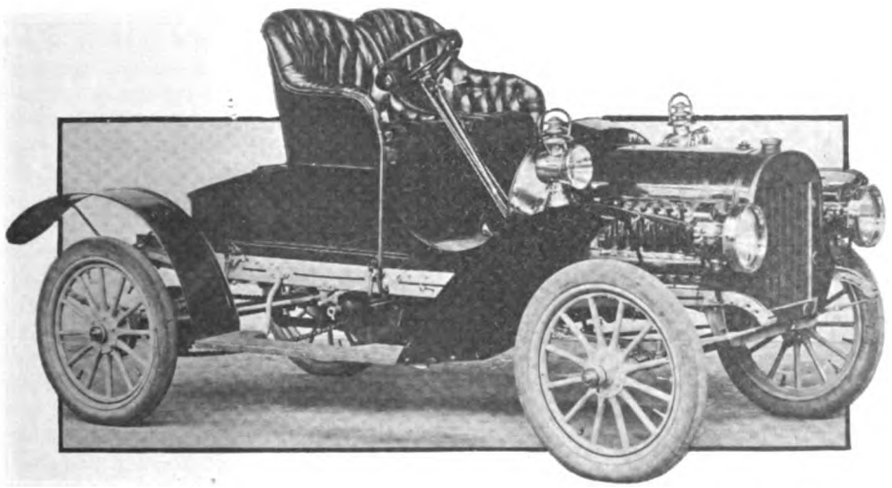
So successful was its Labor day meet at Waverly Park, Newark, that the New Jersey Automobile and Motor Club has decided to hold another free race meet on the same track on Election Day.

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IS A REAL RUNABOUT

New Rambler Not Merely an Extemporized Model—Its Many Features.

In producing the new runabout which is to be a feature of the 1907 output, Thos. B. Jeffery & Co., Kenosha, Wis., have gone to work with the idea that a large number of the runabouts hitherto built have been altogether too light for the general rough and tumble work to which they have been put, and have shaped the lines of the car accordingly. Hence, instead of being a typical runabout, in the sense in which the word was known up to within a year or so, it is a smaller reproduction of the type best known at present as the touring runabout, the "big car" of garage parlance, fitted with a single seat.



1907 RAMBLER RUNABOUT

Externally, the "Model 27" Rambler is quite the conventional thing, the lines of fenders, hood and body giving it a thoroughly modern air. It runs on 30-inch wheels, shod with 3½-inch tires, and has a wheel-base of 90 inches, which is unusually long considering the weight of the machine. The frame members are of pressed steel, the ends of the side members being tapered down to receive the drop forged dumb irons for the springs. These are semi-elliptical in front and full eliptical in the rear, the latter having involute ends, to increase their resiliency. Both sets are 38 inches in length.

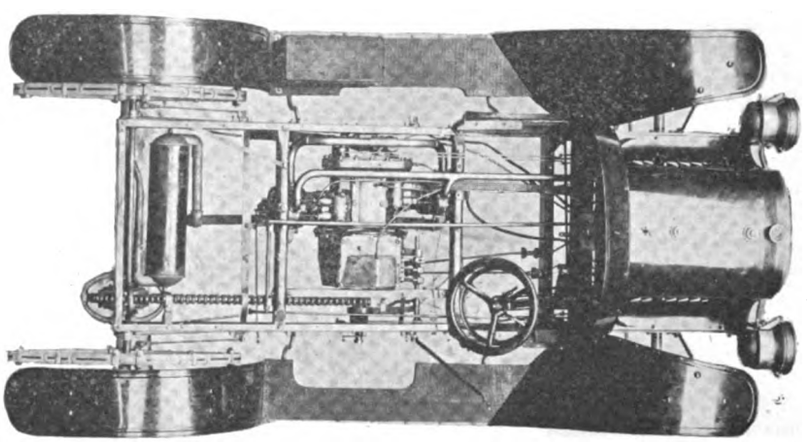
The power plant consists of a double opposed motor, of entirely new design, placed longitudinally in the frame midway between the wheels, and connecting directly with a planetary transmission through which the power is taken to the live rear axle by a single driving chain placed at the extreme right of the chassis. The motor has 4½ by 5-inch cylinders with jackets integrally cast of hard grey iron, the valve pockets being offset at the sides. The pistons are fitted with four packing rings, three above and one below the wrist pins, thereby ensuring a more positive retention of the cylinder gases than is commonly found in motors of this type, while the method of finishing the wall surfaces also insures perfect action in this respect, the usual grinding process being supplemented by an unusually severe running-in treatment. The valves are of nickel steel, directly actuated from the cam shafts of which there are two, so placed that short push rods are made possible, and at the same time, the inspection of the crank shaft and its bearings may be made without disturbing their adjustment. The lifting mechanism is completely housed and protected by a device which besides shielding the parts, permits of facile regulation of the timing.

Radiation is accomplished through the medium of a flat tube cooler which has something like 70 square feet of effective surface. The water circulation is accomplished by the thermo-syphon method large sectioned piping providing for a perfect flow under all circumstances. Ignition is provided by a high tension system employing a double unit coil and duplicate dry batteries, with an optional choice of accumulators. The commutator is of the approved roller pattern which develops little or no wear in service, and the wiring is laid out with due regard to the needs of endurance and perfect protection for the current. A single carburetter of a new Rambler type, is mounted on the left hand side of the motor and is readily accessible.

The transmission, which is mounted in an extension of the motor crank case, is of the two-forward speed type, and mounts a multiple disc clutch next to the flywheel, which is of recent structure, and is most amply furnished with contact surface through the medium of thirteen discs. The friction bands for the low and reverse speeds are fitted with a special contact material, which, taken in conjunction with the fact that the entire mechanism, including the flywheel and clutch, runs in an oil bath, makes for long life with a minimum of wear and heating. The entire mounting of the plant is three-point in principle, and the system acts as a unit and hence is not endangered by possible distortions of the frame due to road stresses.

Two sets of brakes are provided, one acting on the transmission and the other on drums attached to the rear wheels, the application being made through an equalizing bar, which insures uniform retardation on both sides. The feature of accessibility, which has been especially considered throughout the car, is best illustrated by the fitting of the body so that by releasing a couple of thumb nuts it may be tilted to either side at will without disturbing any of the mechanical parts of the chassis. In other respects as well, the same principle has been adhered to, the crank shaft being demountable without disturbing anything except the connecting rods, the transmission, without dismounting the motor, and all adjustments made possible by manipulation from above, thus doing away with any need for crawling beneath the machine for purposes of repair.

The mechanism of control is simple in the extreme, consisting only of brake and clutch levers at the side, and brake and reverse pedals in the foot board, the motor control being of the familiar Rambler type. Ample storage room for the supply tanks



RAMBLER CHASSIS

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and running accessories is furnished by the space under the bonnet in front, by which means the entire platform above the floor line of the chassis is left free for the purposes of the body. Altogether, the machine presents a neat and attractive appearance and seems entirely worthy of the appellation "small car," which is the continental method of expressing the runabout idea without involving any of the oprobrium which has attached itself to a few vehicles which have won disagreeable fame under that title.

This Buyer Wanted the Gasolene, too.

The compiler of the Ford catalogue, in giving the specifications of the four-cylinder Ford runabout, carelessly said: "Gasolene tank, under seat, containing 10 gallons." Of course, he meant to say "capacity" instead of "containing," but he had no idea any buyer would misunderstand his meaning. It remained for Louis Block, manager of the Ford Buffalo branch, to discover a lynx-eyed individual who not only took the catalogue at its face value but actually refused to accept his car unless Block would fill the gasolene tank. This Block as firmly declined to do on the grounds that it was not customary. Despite the fact this car is now at a premium, this man accepted his deposit money back rather than take a car that was, according to his way of looking at it, not up to catalogue specifications.

In speaking of the matter Block said he was glad to terminate his dealings with the exacting Buffalonian right there; "for," said he, "think what a bill he would have had against us at the end of a year if his car had covered less than the stipulated 200 miles on each ten gallons of gasolene!"

The Question of Luggage.

What to do with the luggage is getting to be a serious question with the touring motorist, now that long tours are the rule rather than the exception, and ample seating accomodations an acknowledged necessity. The placing of hampers at any distance above the floor level is evidently unwise, owing to the tendency to make the machine top heavy, and as the running boards are usually encumbered with the tool boxes and accessories of the car, the question is one not easily solved. One well-known builder has, however, solved it to his own satisfaction by adopting a vis-a-vis style of body, accomodating four passengers ordinarily, and two when touring. Under these circumstances the forward seat, back to that of the driver, is transformed into a large locker capable of holding several suit cases, and capacious enough to suit all requirements.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding.

MUFFLER IMPROVEMENT

Marked Progress That Has Been Made—Less Dust and Danger the Results.

Since that technically wise scribe who pads the "Automobile Notes and News" column of a prominent daily paper wrote that the dress of a woman who was run over by a car on upper Broadway last spring "caught fire from a hot coal dropped from the carburetter," it is noticeable that not a few manufacturers have taken the hint thus conveyed. They have stopped putting hot coals in the carburetters of their motors so that so far as a number of 1907 models are concerned there will be no danger of anything under the car catching fire from the muffler, which was what actually happened on the occasion referred to above.

Probably for the reason that, regarded solely from a theoretical point of view and without the enlightening aid of experience as a guide, it appeared that the safest way to divert the escaping gases from the muffler was toward the ground, this plan was adopted in a large number of instances. Then some makers varied it by simply putting a straight extension on the muffler—merely enough to clear the woodwork of the car, and simply because a straight piece of pipe was cheaper than a bent one. Then both schools struck to their original adoption for no better reason than that was what they always had used and could not see any weighty inducement to make a change.

Then there were one or two accidents of the nature mentioned above. It has always been a matter of common knowledge that the exhaust gases escape from the muffler at a high temperature—sufficiently so to ignite anything inflammable that comes in direct contact with them, but it needed one or two occurrences of this kind to make that fact plain to a great many people, who either did not know it previously or never regarded it as a valuable piece of information. And then again, some of the more observant motorists, particularly when the necessity of the case made them so, noticed that those same gases leave the muffler with considerable velocity—also something of which they were perfectly aware before that time, but had never given much thought to. But when they happened to be driving a car directly behind another on a very dusty stretch of road, it became apparent that permitting the exhaust gases to issue from the muffler either directly against the surface of the road or straight out behind was responsible for a large portion of the dust raised by a car.

Doubtless some of those who noticed this were manufacturers of cars or in some way connected with the industry. However that may be, is is a matter of fact that both these pieces of information have been recalled to the attention of some builders and as a result the car with an upturned muffler exit has made its appearance. Of course, it is nothing but a reversal of the old downward pointing style, but it strikes the observer so queerly at first sight that he is tempted to ask the driver of the car if he did not stand on his head when he reassembled the muffler and thus get it upside down. Somehow or other that little upturned crook of pipe appears incongruous. This is principally due to the reason that in order to have the hot gases escape the woodwork of the body it has been necessary to extend the pipe somewhat further rearward than is the case where they naturally leave the car of their own momentum. And it appears equally queer to see a car going along belching smoke upward as if out of a chimney.

On the other hand, some makers have been unable to go the whole extent of the improvement and instead of bringing the downward exit of the muffler to a reversed vertical position they have stopped half way up and left it horizontal, so that the smoke and gases are shot out from the side of the car. In either case the bend in the escape pipe is shorter than it was in its old role of dust raiser and fire transmitter, and the stumpy little bend is reminiscent of the Irishman's nose-warmer. By this simple expedient the amount of dust raised by a car is greatly lessened, which is an improvement at all times, while the more or less remote possibility of setting something on fire is eliminated.

About Cleaning the Crank Case.

It is poor economy not to clean out the crank case at regular intervals and after thoroughly flushing out every trace of the old oil, replace it with a fresh supply, but it is an even worse penny wise and pound foolish practice to attempt to reutilize the contents of the crank case for lubricating points of minor importance by filtering it. With long continued use oil "wears out" just as anything else does. It loses those properties which originally made it valuable. After having been in the crank case for any length of time it becomes dirty and gummy by reason of having accumulated a large proportion of soot and other dirt and is no longer fit for lubricating anything but bearings running under light load and at slow speed. And in order to make it available for the latter it must be carefully filtered so that in the end the result is not worth the trouble.

If metallic iron is melted along with copper or brass, it is said that part enters the alloy and becomes chemically combined, and the remainder separates in pellets or nodules of the hardness of steel. These nodules are the source of much trouble in brass, as they injure tools to an alarming extent.

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METHODS OF FEEDING FUEL

Gravity vs. Pressure—Failings and Benefits of Each System—Points Involved.

At one time or another, considerable discussion has been engendered over the question of the method of feeding the fuel to the carburetter of the car, and, incidentally, as to the proper positioning of the supply tank. The two methods which have been most in vogue, and which seem most practicable, are the gravity and pressure systems, both of which are in use to a considerable extent, and are in reality rivals for the position of highest esteem in the public eye. Hitherto, discusions of the subject have for the most part been based to a great extent upon theory, the pressure system not having had until recently a sufficiently broad trial to warrant its being considered in any other sense. Now, however, both systems have been in use to a sufficient degree so that their relative merits may be considered with comparative exactness.

Considering the two in a general way, first of all, it is apparent that while the gravity feed depends upon the position of the tank with relation to the carburetter, and hence its rate of delivery is under government of the hydrostatic head of the system, the pressure system is controlled either by pressure from the exhaust, or from an accessory compressor, and hence is variable in a measure with it. Thus it is seen that a discussion of the relative merits of the two methods resolves itself into a consideration of the relative advantages of hydrostatic and pneumatic heads, and the proportional difficulties of maintaining each under the conditions which operate in the life of the motor car.

First of all, a constant head at the carburetter being essential in order to establish a uniform flow at the jet, the float-feed mechanism was introduced at the very inception of the spray type of carburetter in contradistinction to the surface or evaporative type. Obviously, were a perfectly constant head from the tank possible of achievement, this provision would not be necessary, it was, however, an essential at the time of its introduction, and still is, with the simple gravity feed. Despite this provision, however, a fairly constant flow is required in order to secure a uniform mixture at all times.

Comparing the relative advantages of the two methods, then, it is apparent, first of all, that while the gravity system is the simplest imaginable, and requires no other arrangements than an outlet to the tank and an air inlet to prevent "gagging," unless some secondary provision is made for maintaining a constant level there, as is done in the float-feed chamber, the pressure governing the flow will diminish with the utilization of the fuel and will decrease in equal proportion to its consumption. Moreover, and what is of still greater importance, as the level of the car varies owing to the ascent or descent of gradients, the level also is altered, so that on climbing very stiff grades with a tank nearly empty, it frequently occurs that the mixture is seriously upset, or even that the car is stopped. On this account, it is sometimes necessary to take heavy grades in the reverse direction so as to bring the tank level above the carburetter, an old and certainly disgraceful expedient to be obliged to resort to, yet one which is by no means to be despised. And again, if for any reason the carburetter takes fire, or any other emergency involving the danger of conflagration arises, it is necessary to shut off the supply by reaching under the tank, by no means an easy task under the circumstances. While a break in the pipe involves flooding the under mechanism, and possibly the heated exhaust pipes, with a stream of the highly inflammable and dangerous liquid.

With the pressure system, on the other hand, while the drawback of varying head is largely avoided by the maintenance of a constant pressure throughout the system, still any tendency to an undue increase in pressure must tend to enrich the mixture and produce a waste of fuel as well as a derangement of the smooth working of the motor, while any interruption of the action will at once deprive the motor of its vital energy. Nevertheless, the method possesses many features which are specially advantageous. Thus, for instance, the maintenance of the pressure at a fixed point is a matter of mechanical regulation entirely independent of road conditions, and on this account alone, the effect of grades upon the running of the motor is almost wholly eliminated. The element of danger is reduced in a measure, since upon the development of any sort of trouble involving fire risk, the pressure may instantly be relieved from any one of several points about the machine, when the flow will be stopped, and any fuel remaining in the piping will be returned by gravity to the tank, or will flow away in so small an amount as to be hardly noteworthy.

Viewing the two systems from the standpoint of running efficiency alone, it is seen that as a matter of fact, there is really less of difference between them than at first is apparent, in that the effect of gravity is present in both cases, varying on grades similarly, and also being altered by the heighth of the fuel in the tank. Yet with the gravity system, there is no recall from the drawback of low level, while with the pressure system, it is possible to increase the feed pressure at will, thereby counterbalancing the effect, or, in case of emergency, increasing it for the purpose of securing a better feed in surmounting a grade, though commonly no such alteration is required. Moreover, it is perfectly possible if necessary, to contrive a pressure system in which the flow shall be under constant head at all times. This, however, is not necessary under ordinary conditions. Theoretically, also, with the properly regulated pressure system, it would be possible to do away with the float feed chamber, feeding the fuel directly to independent mixing valves mounted at the cylinders, thereby effecting a considerable simplification of the plant as a whole. And, it is to be noted that in one or two instances, this has been attempted, notably in the case of the sixteen cylinder motor mounted in a foreign motor boat which was given considerable publicity at the time of its construction some months ago.

Mechanically, of course, the simpler gravity system has the advantage, the double line of piping, valves, gauges and regulators required in the other, complicating it to a degree which cannot be excused unless certain very obvious advantages, otherwise unattainable, are to be gained by its use. Yet the amount of complication is not a serious feature, and in practice, it has been found that no great difficulty has resulted from its use where proper care has been given it. It should, however, be noted in this connection that many drivers have a tendency to increase the pressure on the feed, apparently laboring under the impression that it is an advantage to do so, whereas it is perfectly apparent that the greater the pressure, the greater the liability to leakage of valves and pipe joints, and consequently, the greater factor of uncertainty in operation of the system.

As far as safety is concerned, it would appear that the gravity system is less to be desired, owing to the natural tendency of the liquid to flow through any leaks. Yet, on the other hand, where an excessive pressure is employed in the pressure system, the result of a break in the fuel line is to throw a jet of the liquid a considerable distance, thus spreading the flames, or at least increasing the liability of its spread by a considerable degree. This same principle also applies in the case of leakages on the fuel side of the system. The possibility of placing the tank in an out of the way location away from the motor and outside the confines of the body, serves as an argument in favor of the method, and one which is not to be lightly regarded—for it is a great drawback of the gravity system that the tank must be placed in an inaccessible position where it can only be gotten at for purposes of inspection or repair by uncovering at least a portion of the body.

In this connection, it is well to note that a London fire insurance officer recently condemned the pressure system on account of the danger from leaks, and gave it as his opinion that the risk was greater in cars fed by pressure than with those employing the gravity system alone. This, however, may be taken as a condemnation of the methods of applying the system quite as much as of the system itself, since in

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theory, the ability of the driver to release the pressure upon the least sign of danger, minimizes the risk.

Still another point which should be taken into account is that the arrangement of the pressure tank below the floor line of the chassis permits of making a complete chassis wholly independent of the body, and thus materially aids in the interchange of bodies, and the ready conversion of the car from one use to another. This, together with the fact that there is a likelihood of an increase in the use of compressed air on cars of the heavier type, in which case the amount of additional equipment would be even less than is required where the pressure is taken from the exhaust, makes it appear that the method of feeding by pressure will not be abandoned, but for cars of a size that will warrant the adoption of arrangements regardless of the distribution of the parts and the cost, will be retained and employed to an increasing extent. For aside from the feature of its first cost, it appears to be by far the better of the two.

When Batteries Boil Over.

Boiling over or foaming at the vent of the accumulators is a trouble that is apt to puzzle any but the driver who has had a similar experience previously. This is not strange, however, for it was a mystery for no little time to many makers of accumulators. Experiment and investigation finally traced it to impurities in the solution. These may be due to poor acid, impure water, and this is the most common source, or they may have come from the plates themselves.

Battery makers are always explicit in their directions to employ nothing but distilled water, or failing this, pure rain water, as the basis of the electrolyte and neglect to observe this warning is doubtless responsible in the majority of instances. To prevent the recurrence of the trouble, the cell should be emptied and thoroughly washed out with distilled water, rinsing the cells out several times and changing the water each time. Any sediment lying in the bottoms of the cells or loose pieces from the plates should also be removed. Then the jars should be refilled with the dilute acid solution of the proper specific gravity, 1.2. Care should be taken to procure chemically pure sulphuric acid as well as distilled water as commercial vitriol contains many impurities. If these be not obtainable it is preferable to return the cell to the makers as the trouble in question is found to be of rare occurrence in batteries as they leave the makers' hands, but only after they have been in use for some time.

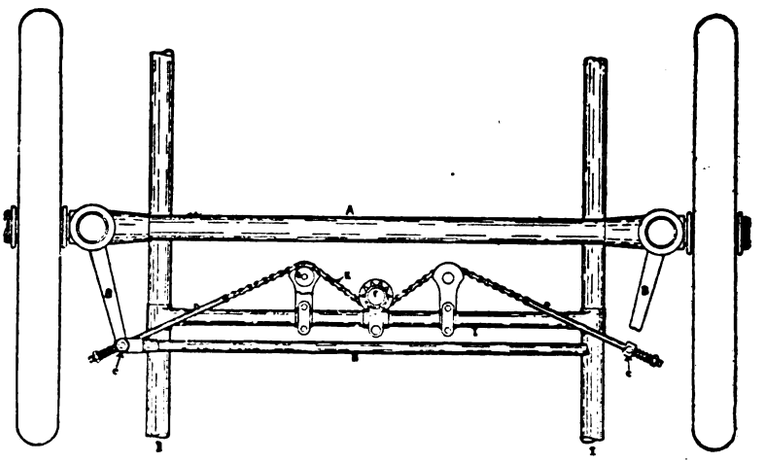
Test the Tires' Thumb Nuts.

Thumb nuts on the security bolts of the tires have an unaccountable way of coming loose without warning regardless of how firmly they may have been set up when put in place. It is a precaution that consumes very little time to test them occasionally.

STEERING GEAR FOR LIGHT CAR

Innovation Introduced Abroad and Some of the Purposes That it Serves.

A novel form of steering gear which has recently been introduced in England on a light machine of the cycle type, the Phoenix Quadcar, is worth consideration because of the manner in which the destructive backlash, so common in many types of steering gear, is guarded against, as well as in point of its simplicity. In fact, although employing a sprocket chain in making the connection, which is regarded as being, if



not unmechanical, at least to be avoided as far as possible, it appears to be essentially fit for machines of light construction in which the elements of low first cost and general reliability are to be considered.

As will be seen from the accompanying illustration, the control of the steering arms B-B by the sprocket F, which is under the guidance of the steering wheel, is accomplished by means of a pair of rods D-D and a chain K, passing over the sprocket and being held taut by a pair of idle guide pulleys G-G. The method of connecting the rods D with the steering arms is as follows: A swivel socket C is fixed to each arm, in such a way that the rod may pass through it freely from end to end, it being held toward the outside of the machine by means of a small spiral spring, the purpose of the swivel being to allow for altered angularity at different positions of the steering group. The use of the springs is two-fold. In the first place they serve to maintain the tension of the chain at all times, and also, they save the parts from excessive shock due to rough road conditions, thereby reducing the danger of fractured parts under heavy and unusual stresses. A distance rod H, serves to maintain the alignment of the wheels regardless of the condition of the chain and connections, and thus renders the system perfectly rigid in use.

One particular advantage which this system possesses, and which makes possible the use of lighter construction than otherwise would be advisable, is that the guiding of the machine is accomplished solely through parts which are in tension. Thus, the danger of buckling rods is obviated, and the weight of material in service is considerably reduced. Another advantage which is noticeable, is the absence of pivot connections, which are, practically speaking, reduced to a minimum of two.

How to Test French Chalk.

French chalk such as frequently is recommended for use in lubricating inner tire tubes, should in theory be a smooth uniform powder, free from all gritty material and non-injurious to the rubber, but unfortunately it is sometimes sold in an impure or adulterated state in which it actually does more harm than good. The presence of grit can sometimes be detected by sifting it between the fingers, but for the presence of other impurities such as powdered limestone, some other test is necessary.

For this purpose, an exchange recommends the following process: Take a small quantity of the suspected chalk and cover it with at least an equal amount of common soda water, or vichy. The carbonic acid present will transform into carbonates any lime or similar substances which are ingredient in the so-called chalk. After boiling the resulting solution for a few moments allow it to cool, and then add a small amount of weak acid such as vinegar or battery electrolyte when any effervescence resulting will indicate the presence of harmful ingredients. Powdered talc or soapstone in its pure state should not be affected by either of the acids.

Padding the Old Bearing.

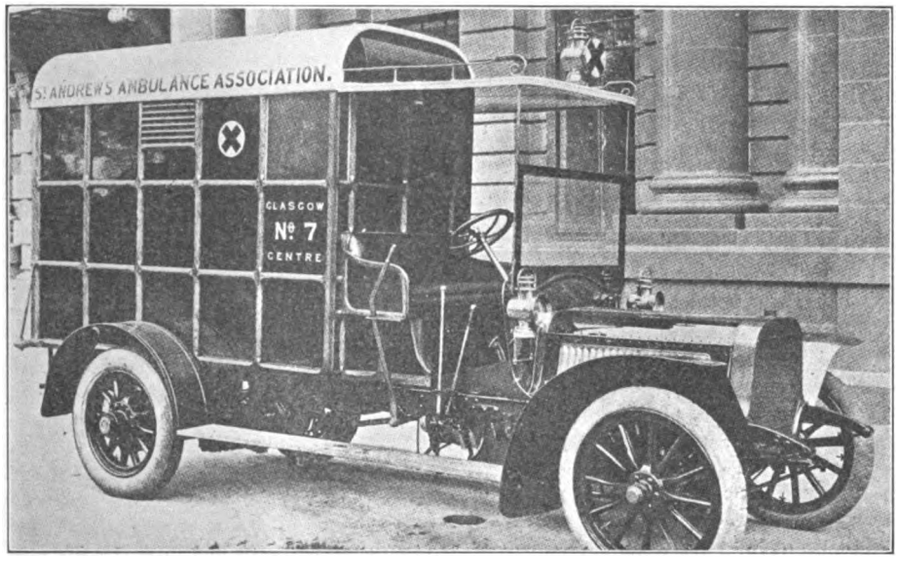
When old bearings have been refitted and it has been found necessary to raise the lower half of the boxes by means of "pads" placed underneath them, care should be taken to see that these "shims" lie perfectly flat and that plenty of pressure is put upon the bolts when the bearing is drown up. Otherwise the pounding of the load will be apt to compress them and leave an even worse condition than originally obtained.

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HERE'S GASOLENE AMBULANCE

Believed to be First of the Sort—Can be Heated During Cold Weather.

One of the most important applications of the commercial motor vehicle to municipal service is in its adaptation to ambulance work, a duty to which it has been applied with more or less success during a period dating well back into the days of automobile history, but only recently in a way wholly satisfactory. Now, however, the perfection of the gasolene machine, relatively speaking, has encouraged several municipalities and associations to employ it for this purpose, and, it is gratifying to observe, with happy results. The most recent development in this line is seen in the case of the ambulance which has just been constructed by the Argyle Motors company for the St. Andrew's Ambulance Association, in Glasgow, where it is to go into service at once.



This somewhat cumbersome looking machine, which is mounted on a special chassis driven by a 26-30 horsepower four-cylinder motor, is designed to fulfil the needs of the general work of the Association, and carries the regulation equipment, which is very complete. The internal dimensions of the body are: Length, 8 feet; breadth, 3 feet 10 inches, and height, 6 feet. The framework of the top is very heavy, and the sides are completely enclosed except for lights at the front by the side of the driver's seat, and a couple of unglazed windows at the back which are closed by shutters. A rolling couch of sofa-like proportions, occupies the greater portion of one side, while upon the other is a seat for the attendant, and locker room for medicines and supplies. The interior is electrically lighted and an electric annunciator enables the attendant to communicate with the driver at will. For winter service, the interior is heated by by-passing the exhaust through a system of piping which runs around the floor, the degree of heat supplied being regulated by suitable valves.

The motor is of standard construction, having double high tension ignition, one source of current being battery accumulators, and the other magneto, and the cooling system is perfectly regular. The flywheel and clutch are combined, the latter being of the multiple disc variety, and connecting with a three-speed gear box of the sliding change type. The frame is of channel section pressed from sheet steel, and the springing arrangements are designed with especial regard to the unusual needs of easy cushioning and reliability. Altogether, the machine represents an example of what is best in present British practice, mounting a substantial and particularly roomy body.

To Check Leaks in Radiators.

Leaky radiator tubes may be stopped temporarily by plugging the ends with stoppers whittled from soft wood or cork, or by pieces of soft cloth rolled tightly and saturated with shellac. Another good material for the purpose is white lead, applied with rags, as in the case of the shellac. Or, failing either of these, ordinary tire cement may be utilized, if the affected parts are dried thoroughly before making the application. A great number of tiny leaks in the cooling system may be staunched by feeding a couple of handfuls of bran or sawdust into the filling aperture in the tank, and allowing the motor to run long enough to circulate the water thoroughly a few times, after which it should be allowed to stand for an hour or two before further use. In extreme cases, it is possible to employ a weak acid solution in order to rust up leaks which are due to cracks or ruptures of a minute nature in radiator, piping or jackets. The application should be judicious, however, and the experiment not too much prolonged.

When a Cylinder Goes Lame.

When through the happening of an accident not easily repaired on the road it becomes necessary to proceed homeward on two or three cylinders the ignition to the ones that have defaulted should not be cut off unless it is desired that an explosion should not take place in those cylinders through fear of aggravating the injury. In such a case the high tension leads should be disconnected from the dead cylinders and made fast where they will touch some part of the engine or frame in order to insure a ground return. Or the spark plugs themselves may be taken out and fixed in the same way, that is, so they will provide a return path for the current just as if they were screwed into the cylinder head. This is in order not to impose too great a strain on the induction coil when connected with the leads to the dead cylinders, as would be the case were the former to be merely disconnected and left hanging some distance from a ground return.

Neglect of the Spark Plug.

Too many drivers are only too willing to take things for granted simply because the engine starts easily and continues to run well, and on that account are apt to overlook those little attentions that should be given every motor. And one of these that is probably most often neglected is regular inspection of the spark plug.

The loss of power attendant upon a dirty plug takes place so gradually that the man who is driving the car all the time is not likely to notice it, but the difference in running attributable to this cause may best be realized by giving all the plugs a thorough cleaning after they have been neglected for a month or two of steady running. Twice a month is not too often to look after this and all traces of soot or baked on carbon should be removed with a piece of emery cloth, followed by cleaning with a stiff brush dipped in gasolene.

Kerosene Trial Test Proved Nothing.

First attempts to utilize the motor burning kerosene as a fuel on the automobile are apparently not very encouraging. The official trials organized by the Automobile Club of France have just come to an end. As none of the types presented completely satisfied the jury there probably will be no report upon them. Those tried were the Gardner, Griffin, Abeille and Pacour. The trials will be resumed in November and it is thought that other firms will take part in addition to those mentioned, although the latter have the privilege of re-submiting the same motors or others. The entry fee is 100 francs, or about $20.

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MOTOR CARS IN GOLD FIELDS

Great Work the "Greyhounds" are Doing—Special Roads Have Been Built.

"Desert greyhounds" is the title that has been given the automobiles that make a business of crossing the sand stretches of Nevada and Arizona, as nothing but the jack rabbit and the railroad train have ever done so before. But railroads are few and far between which gives the automobile its opportunity. It has proven so eminently fitted for the task that regular routes are now covered between mining centers on a schedule calling for a sustained speed equal to that maintained by western trains and greatly superior to it when the added difficulties presented by lack of a road and the extreme grades encountered are taken into consideration. For instance, the distance of 255 miles lying between Tonopah and Goldfield has been covered in 10 hours.

According to an authority the automobile has advanced the development of the desert minning country by at least ten years, and its value for this work is so well recognized that special roads are now being constructed. They are not, however, of the usual type, by any means, and to indulge in a Hibernicism might most aptly be termed "dirt railroads," because they have no rails. They consist of two tracks in the dust, each about five inches wide, while the roadbed is exactly the same width as the tread of the car. No other vehicles are permitted on these roads and they are being constructed and kept in repair by the owners of the automobile stage lines. Almost two hundred miles of such road have been "built" although the term appears to be somewhat of a misnomer in this connection, to judge from the description. The stretch of 80 miles lying between Goldfield and Bullfrog is thus provided, as is also another stretch of about the same distance between Manhattan, Tonopah and Goldfield.

Despite their construction, or rather lack of it, high speed is said to be possible on these so-called roads, the 80-mile stretch between Manhattan and Goldfield being covered in four hours, which includes all stops, one of half an hour being made at Tonopah. The actual running time is said to be about three hours, or an average of close to 27 miles an hour, while in good spots the mile-a-minute mark is said to be approached. Goldfield with but 7,000 inhabitants is credited with more high-priced cars than Salt Lake City, with 80,000.

"Special Officer" Gets Into Trouble.

One result of New Jersey's drastic law which went into effect on July 1st, has been to imbue at least one man with the idea that destiny has marked him as an apprehender of all violators and he has accordingly taken that duty upon himself. He is D. R. Masterson, aged 19 and son of a hotel-keeper in South Amboy, which, since the opening of the bridge across the mouth of the Raritan finds itself on the main artery of automobile travel between New York City and the New Jersey resorts.

Armed only with a tin badge inscribed "Special Officer 22," young Masterson has rounded up motorists and with that charming informality that prevails in the rural tribunals of the lower order, they have frequently been fined without even the formality of a trial. Then Masterson caught a tartar and charged him with eating up space at the rate of a quarter-mile in 16 seconds or a little better than 55 miles an hour. The motorist was taken before the recorder at Avon, who promptly said $15. But then the victim got busy and unless this self-constituted official apprehender of speeders who is said to have held up the the same victim twice on the same day, can satisfactorily explain things, he will have to face a charge of having impersonated an officer as well as making a false arrest.

Relieved Anger by Burning Car.

From Terre Haute, Ind., comes the tale of a young St. Louisian, whose uncontrollable temper resulted in his deliberately burning his car because it had stopped and he did not know how to remedy whatever the difficulty might have been. According to the dispatch, H. E. Hille, of St. Louis, on Sunday last, was on his way from Indianapolis and when going through Billtown, a small village ten miles east of Terre Haute, the car stopped dead. The usual country crowd gathered and began to taunt the driver after he had cranked until red in the face. Hille kept on cranking without results and the longer he cranked the hotter and madder he became. Finally, to cap the climax, an old man driving a team of horses, happened along and asked the perspiring St. Louisian why he did not get an outfit like he was driving or else walk. Hille became angry and turning to the crowd asked how much he was offered for the machine. Receiving no reply, he went into a store, bought two gallons of oil, saturated the automobile with it and after removing the license plate, set it on fire. After watching it burn, he boarded a trolley car for Terre Haute.

$100 Fine for Soiling Seattle's Streets.

In the future Seattle (Wash.) automobilists must equip their cars with under blankets or suffer the penalty for allowing grease to drip on the streets. The city council passed an ordinance last week making it a misdemeanor punishable by a fine of $100 or 30 days in jail, to drop, or allow to drip, oil, grease or similar substances, on any street or alley way in the city.

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding.

WHAT CONSTITUTES A WALK

The Question is Worrying Portland and Thereby Hangs a Local Law.

City Prosecutor Fitzgerald and Judge Cameron, of Portland, Oregon, are in a quandary, and the grave question that is disturbing their peace of mind is, "Can an automobile walk, and if so, how fast can it walk?" The learned prosecutor and judge have ransacked law books and other authorities to no avail and have come to the conclusion that the city council is sadly in need of some lessons in grammar. Some time ago council passed an ordinance, a portion of which reads as follows:

"It is hereby declared to be unlawful to operate any automobile or to drive any vehicle upon or across any intersection of streets where street cars turn, at a greater speed than a walk." The word "walk" is the cause of all the trouble.

A few weeks ago the prosecutor was asked for an arrest warrant, under the provisions of the new ordinance, for the arrest of an automobile driver who had violated that section of the act, the police claiming that the car in question turned a corner where street cars turn at a speed of 10 or 12 miles an hour. When the dilemma occurred some one suggested that a man can walk four miles an hour, but the prosecutor rightly contends that a man is not an automobile, although he may be an automaton. Bailiff McDonald thought that an automobile is not walking when it is traveling at only 10 or 12 miles an hour for, vouchsafed the Bailiff, "did not Dan Patch win in a walk at 2:01 for the mile and cannot an ostrich walk 20 miles an hour without exertion, to say nothing of the insignificant flea."

The issuance of the warrant was finally postponed until the prosecutor can learn definitely what the council meant by a "walk." Incidental inquiry will be made regarding the cost of putting the council through a course of English composition and the cost of authentic text books, it is stated.

The Limit of the "Law's Delay."

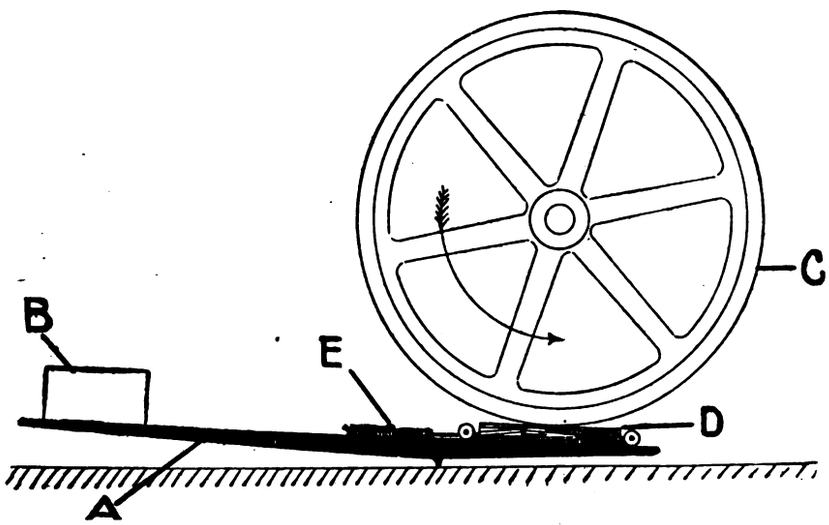
What is probably the limit of misapplication of the automobile law in Great Britain, developed in a recent instance where a motorist was summoned to answer to a charge of "driving to the common danger," just seven months after the occurrence of the alleged offense, and when he was totally unaware that action against him was pending. As he was given but 24 hours in which to appear, it is needless to state that he lost his case in the lower court. He appealed, however, and the final issue is being awaited with great local interest.

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FOR MEASURING POWER

Simple Dynamometer that Serves Purpose —How it is Operated.

With the constantly growing interest in the mechanical side of automobiling, questions of horsepower, both in motors, and as involved in discussions of the efficiency of transmissions, are fast becoming familiar among even the untechnical class of users, and it is posible that the time is not far distant when actual tests will be required by purchasers in order to establish the rating of their machines. One thing which has delayed the growth of this demand more than otherwise might have been the case, has been the difficulty of arranging suitable tests. The apparatus necessary for a determination of the power of a motor, is if complete and accurate, too cumbersome for transportation from place to place, and too expensive for the user or dealer to care to handle. Even the prony brake, hitherto the simplest mechanical weigher of power, has been but little understood, and not at all appreciated in its true value. A device which has been brought out recently, however, bids fair to take its place for ordinary light testing where close results are not in demand, and in simplicity and cheapness of construction, as well as in its facility of application, puts even that time honored mechanism in the shade.



This device, known as the Sellers Dynamometer, which is the product of a London inventor of the same name, consists of nothing more than a lever fulcrumed near one end, and arranged to be pressed against the pulley of the machine, the power of which is to be measured by weighting the long end. Upon the end which is nearest the pulley, is mounted a small carriage which slides along the lever on rollers of suitable size and strength, coupled to which is a spring balance of the ordinary type which is anchored to the lever at a point near the fulcrum. The carriage, which in its simplest form may consist of a block of wood, is dragged along the lever by the friction caused by the rotation of the pulley, this motion causing a strain upon the spring balance, the magnitude of which is registered upon its dial. This force, together with the peripheral speed of the pulley is all that is required in calculating the power.

As shown in the accompanying illustration, the lever A, is borne down by the weight B, its opposite end rising in consequence and causing the block D to be dragged outwardly along the lever by the friction of the rim of the pulley C. The force required to keep the block from being thrown out by the latter, is measured by the reading of the spring balance E, which in this way furnishes a measure of the power absorbed. It is a simple method of measuring the tangential pull at the rim of the pulley required to check its motion, or to absorb a certain amount of power, as the case may be, and consequently the formula used in connection with it is:

$$\text{H. P.} = \frac{W \times S}{33{,}000}$$

Where H. P.-horsepower, and W-the reading of the balance, and S-peripheral speed of the pulley. This factor, of course, is equal to the diameter of the pulley times the constant 3.1416, times the number of revolutions per minute.

As designed to be applied to motor vehicles, the brake is of light and handy construction, and may be utilized by bearing it against some part of the frame and resting the moveable block against the flywheel. In this way, the power of a motor may be tested at any time by simply ascertaining the speed of the crank shaft applying the brake, and reading the spring balance, when by consulting a table, the correct result may be obtained. The amount of force brought to bear on the end of the lever varies the amount of power absorbed, and is consequently alterable to suit conditions. The position of the fulcrum, other than altering the amount of force necessary to be applied at the outer end in order to absorb a given amount of power, has no effect upon the reading.

One important point in connection with the application of the device, is that there are no corrections to be applied to the readings in order to obtain the correct power figure. The friction of the rollers which support the friction block, which at first might seem to be involved, really does not enter into consideration at all where a constant load is to be taken, for under those circumstances the block is obviously held stationary by the drag of the pulley, and hence the element of rolling friction is not entertained. Hence when there is complete equilibrium, no other factors are involved than the speed of the pulley and the drag upon the block.

For cases where tests requiring great accuracy are to be made, where other than a momentary reading is required, it is evident that the heating of the block would cause a variation in the co-efficient of friction, which would produce uncertain and variable results. For short and simple tests, however, it appears to be well suited to the purpose.

Variation of Oscillating Motor.

At last an internal combustion motor has been developed abroad in the oscillating form, at one time poular with steam engine designers. The intent of this particular motor is not, however, the same as that which impelled the old fashioned steam engineers to adopt the design, since a variable stroke is provided for. By means of cams driven by a two-to-one shaft, the cylinder is made to advance toward the crank shaft during the exhaust stroke, thereby reducing the engine clearance, and providing for the expulsion of the entire body of refuse gases. The trunk piston and connecting rod are combined, and the arrangement contemplates a form of air-cooling. The transfer of the live and exhaust gases through trunnion ports, however, furnishes an apparent condemnation.

To Make Pole-Finding Paper.

Pole finding paper, such as is used for determining the polarity of an electric current, may be made in the following manner when not readily obtainable of a dealer: To a solution of phenolphthalein in alcohol, made in the ratio of 1 gramme to 10 cubic centimeters of alcohol, add 110 cubic centimeters of distilled water. Make also a second solution of 20 grammes of sodium sulphate in 100 cubic centimeters of water. Immerse the blotting paper which is to be prepared in the first solution and after it is thoroughly wetted drain off and dip again in the second solution, after which dry it thoroughly. When the terminals of an unknown circuit are placed side by side upon the paper a short distance apart, a reddish discoloration will appear at the end of the negative wire.

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PLAYING TAG WITH STORMS

Detroiter Says it's a New Sport and Outlines the Rules of the Game.

Racing with thunderstorms is a new sport taken up by motorists, or at least a Detroit reporter says so. He credits the idea to Henry Ford, the Detroit manufacturer.

To show how the game is played, Mr. Ford's experience one day last week is cited. He invited a party of friends to take a drive. When about to start one observed that a storm was brewing, and suggested it would be better to postpone the trip till a more propitious day.

"Not at all," said Ford. "That storm can't catch us—it's four miles from here now, and coming this way—we'll beat it and go around it."

Seeing he was in earnest, some one wanted to wager him the storm would win, but there was no time for betting. Ford opened up the "big six" and taking back streets, was able to make fairly good speed until the city limits were reached. The storm was gaining and already it was sprinkling on the motorists, so it was suggested the top be put up.

This suggestion was lost in the vacuum behind as the car was let out to forty, forty-five, fifty miles per hour. The drops ceased falling, sunshine, bright and clear, lighted the way of the flying machine. The car now gained on the storm and for fifteen miles ran on dry roads, although the occupants could plainly see the black sheets of water falling just behind while the vivid lightning and terrific thunderclaps followed like Nemesis.

"All at once, though the car was running faster than the storm, a few drops cut the face of the driver. Looking up quickly, he noticed that the clouds were going in the opposite direction—the party had run into a counter-current of air and another storm. A quick turn to the left on the first cross-road was in order, and that storm was soon left at the post. One air current absorbed or counteracted the other, so that both storms were eluded in the mad rush of the automobile.

The ride was continued throughout the entire afternoon, during which time nearly 100 miles were covered over roads every inch of which were later deluged with rain, and yet the occupants of the car never were wet. Strangely enough, the route, when completed, showed that the party had traveled toward all points of the compass, had criss-crossed three counties, and in some cases had recrossed its own tracks in getting around and then behind a storm whose effects, however, they had entirely escaped.

Mr. Ford says a car that can run at least forty miles per hour on any kind of country roads and a keen weather eye are the only requirements to make an expert at this game, which is more exciting and more exhilirating than chasing balloons—or rainbows. One condition that aids the driver and reduces the chances of accident is the fact that when a thunderstorm is impending the horse-drawn vehicles take to cover, so the roads are left clear for the motorist.

According to the Detroit reporter, electrical storm clouds seldom have an area greater than fifteen or twenty miles square, and except in cases of real tornadoes never travel more than thirty miles an hour, so the car need not be "quicker than lightning" to evade them. The storms are capricious, however, and this is what lends exhilirating variety to the game.

The Use of Tobacco by Motorists.

"All these stories about the automobile having increased the consumption of chewing tobacco are pure rot," remarked an experienced motorist to a Motor World man the other day. "Why, man alive! I can hardly recall a single instance of a chauffeur who chews and certainly they are rare enough to be quite the exception instead of the rule. I'm in a car a large part of the time; my business brings me in contact with a great many professional drivers as well as motorists who drive their own cars and I have yet to see any percentage of tobacco chewers.

"It's all very well to say a cigar can't be enjoyed in a car running at a high rate of speed. Everyone knows that the man who is particular about the brand of Havanas that he consumes doesn't waste them on all outside; he smokes them in the house. But tell me where a driver is going to spit tobacco juice with a car running anything more than 10 miles an hour?

"No, is isn't exactly a pleasant subject, but a whole lot less so if you had a man on the front seat expectorating tobacco juice with the high wind that a car going 20 miles an hour or over makes, blowing right back onto you. You'd simply have to put him in a glass cage.

"So far as the theory of a cigar being unenjoyable on the car goes, it's alright, but practice works out exactly the opposite, for from my observation I would say that both drivers and motorists are the largest consumers of cigars there are and the minute the average man gets into a car he wants to have a weed in his mouth. The wind burns half of it, of course, but high speed is an unusual sensation even to those accustomed to it and every time the driver lets out a notch both he and his passengers like to take an extra grip with their teeth on the butt end of their cigars. That's all there is to it, in my mind."

If an endurance contest such as the Glidden Tour is all that its name implies in this country, what must it be in Germany, where it goes by the euphonious appellation of "Zuverlassigkeitsfahrt."

TRYING TO LAY THE DUST

Massachusetts Town Tackles the Problem and is Testing Several Solutions.

Through the experiment of applying a solution of calcium chloride and water to dirt roads to lay the dust, has been in progress in Beverly, Mass., little more than a week, it has so far given very satisfactory results. The experiment is being tried on West Street, near West Beach, by a committee of men who have for several years interested themselves on the subject of good roads in the town. Colonel William D. Schier is one of the committee and he has figured out the cost of the calcium chloride treatment and states that it is not more expensive than sprinkling with water. It must have been the custom to sprinkle the road with water four times a day. By using the chloride treatment the use of some of the watering carts can be dispensed with, which will materially lessen expenses.

About a week ago two applications of calcium chloride were made and since that time there has been no dust whatever, it is stated. One pound of calcium chloride is used to a gallon of water, and it costs about 1.1 cents per running foot for a street eighteen feet wide. Colonel Schier expects that in future it will not cost more than 1.5 cents. The first two applications cost about $100 per mile. If the chemical could be purchased as cheaply as in England and the solution prepared in large quantities the cost would be materially reduced. It is figured that the next application ought not to cost more than $50 a mile.

The same men are also experimenting with crude Texan oil, which has a basis of asphalt. This is the material used in California with much success. It costs here about 3.5 cents a foot for the oil, exclusive of the cost of applying it. This treatment is being tried on Brindle avenue, Beverly, which is a gravel road. It is also to be tried on a macadam road. Colonel Schier went to California last week, and when he returns hopes to make an experiment in building a macadam road with oil as a binder for the top surface instead of water. Under the usual system of constructing macadam road the fine top surface is laid in water, and when rolled down hardens into a cement-like surface. It is thought that if the top surface were laid in crude oil containing asphalt a top surface as hard and smooth as asphalt itself would be formed. These experiments in Beverly are being watched with much interest by the Highway Commissioners of Massachusetts who are seeking some remedy for the stripping of the State roads by automobiles, and the results of the Beverly work will also be of much interest to highway engineers everywhere.

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CARE OF ACCUMULATORS

Methods that Assure Best Service and Long Life—Causes of Sudden Failure.

There are some things that are often better left untampered with; there are others which if not constantly tested and examined will rapidly disintegrate, and there is a third class that will give satisfaction by a combination of the two treatments, says the Motor Trader. The accumulator is an apt illustration of the second category. There is probably no item on a motor which is more carelessly treated than the storage battery. Men who will be constantly grinding the exhaust valve and fiddling with the mechanical details will seldom give a thought to the care of this—the first source of their machine's power. The following remarks are based on practical experience, and may prove of service to users of storage batteries generally, and irrespective of any particular make.

The almost universal type of accumulator or storage batery for motor use consists of a series of lead grids, suitably serrated or pasted and immersed in a bath of dilute sulphuric acid. These grids are cast in such a manner that the paste in them will be firmly held in place notwithstanding vibration and the expansion on charging or contraction on discharging which they will be subjected to. The material used for the paste is red lead for the positive plates, and yellow lead or litharge for the negative ones.

In the case of a new cell, if sent dry, it should be filled up with dilute sulphuric acid, having a specific gravity of 1.2. It is better to get this ready mixed by a local chemist, as few motorists possess the necessary hydrometer to test the specific gravity of the acid. However, when pure brimstone acid is obtainable, one part by volume added to five parts of pure water will give a resultant mixture sufficiently reliable for all practical purposes. It is essential that the acid be added to the water, not vice versa, which should be kept stirred while the acid is being poured in. Only an earthenware vessel should be used for the purpose and for similar reasons no metal spoon should be employed to stir the mixture. The latter should be allowed to cool (for the acid will generate heat) before being poured or syringed into the cell. The battery should immediately be put on charge, and when doing so it is most essential that the positive plates of the cell be connected to the positive side of the charging leads. In case of doubt, as to which of the charging wires is the positive and which the negative, there are several ways of testing. The most usual way is by a piece of test or pole-finding paper, which, when it has been wetted, both wires are placed on, about one inch apart. Where no test paper is available, a simple method is to carefully measure voltage of accumulator, and then connect up to charging leads. Again carefully take voltage of accumulator, and if the voltage is now higher, however little, the cell has been connected up properly, but if it reads lower the wires must be changed over.

It is most important that the charging rate should not exceed one-tenth the rated capacity of the cell in amp. hrs. Thus if a cell is marked 20 amp. hrs., then the rate should not be more than 2 amps. In the event of the cell not being marked, the charging rate should not exceed 1 amp. for each 30 sq. inches of surface on positive plates. For example, suppose each cell contains two positive plates about 3 by 4 in., there would be 24 sq. inches of plate surface each. There being two plates to each cell, therefore 48 sq. inches, the charging rate would be 48 divided by 30, or approximately 1½ amps. The color of the plates is an index to the condition of the cells. When fully charged, the positive plates will have a deep chocolate color, and the negative a rich metallic grey. As the cell is discharged the positive plates will change to a yellowish red color, and the negative ones become of a darker and duller hue. When the current is passing, and the cells charged, the voltage of each should be 2.6, or 5.2 for the double cell. This will gradually drop to 4.2 when the charging is stopped. In no case should a cell be discharged when the voltage is below 1.8 for each cell, or damage to the cell will result. It is necessary to note that only a continuous current can be used for charging. Where the supply is on the alternating system it is first necessary to transform the current into a continuous one. Suitable machines are now sold for the purpose. Each cell will in course of time require replenishing with fresh diluted acid, and though the charging instructions usually tell the user to make up any loss through evaporation by the addition of pure distilled water, it can readily be seen that in time the original strength of the acid-water, or electrolyte, as it is termed, will have become much diminished. Hence, it is well to periodically have the cell thoroughly cleansed, and re-filled with fresh electrolyte.

The value of the hydrometer is in connection with its use as a means of testing the strength of the electrolyte. Some writers place its value as high, if not greater, than that of the voltmeter itself or the four-volt test lamp. One reason for this, no doubt, is that whereas the two latter reveal the effect and actual condition of things as a result of the charging, the former prevents the chance of resulting trouble by ensuring that the battery is in proper condition to receive a full charge. The best type of hydrometer is what is termed the "four bead," the beads being arranged to read 1.170, 1.185, 1.200, and 1.220. The specific gravity of the acid water in a four-volt battery when fully charged varies between 1.205 and 1.220, and when nearly discharged it will be about 1.170. It will thus be seen that the margins of the test readings are somewhat narrow, and it is generally considered time to change or renew the acid when the specific gravity will not rise from a lengthy charging to at least 1.200, which is equivalent to 1 in 4 parts of acid to water.

The charging of accumulators should only be done by a competent electrician who has the time and makes it his business to devote attention to the careful handling of the cells for there is no doubt that many cells are destroyed from neglect, or through want of knowledge on the part of the person entrusted to recharge them. Charging at higher than the normal rate should be avoided, while charging at a lower and for a longer period is advantageous. Twelve hours is the usual period required to fully charge a battery, and when fully charged it is not advisable to continue charging it further, as it tends to loosen the paste in the cells.

The danger of overcharging (as distinct from charging at too high a rate) is, that it produces a deposit of sulphate of lead on the negative plates, which in time will short-circuit the plates, and it will also rot the positive plate by reducing the lead grid, on which the strength of the plate depends, to peroxide of lead. An incidental danger, which consists in the paste falling out of the plates, is caused by charging at too high a rate, or by discharging too rapidly, such as is caused by flashing the terminals with a knife blade or other metallic connection; and also by discharging the cells to below three volts for the double cell. The necessity for a frequent recharging of the accumulators cannot be overestimated. At the same time the intervals between the charges will vary according to the individual user's experience and the economy of the coil. From experiment it has been found that an efficient coil should not take more than three amperes through the primary winding, or .5 ampere with the trembler vibrating. A further common source of excessive current is at the contact breaker, which may be readily noted by an excessive sparking at that point.

Generally speaking, once a fortnight is not too frequent an interval for recharging, and this arrangement is considerably facilitated by carrying a second accumulator. But it must not be overlooked that, except the user will strictly adhere to the above rule, the emergency battery may prove a nuisance, and is not necessary. Where it is installed, it should be used alternately, or it probably will be found useless when wanted. Another advantage gained by frequent recharging is that it enables a more frequent examination of the terminals to be made. It is impossible to prevent the latter being subjected to acid spray which is insensible to the touch, always floating in the region of a battery, but as a preventa-

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tive against terminal trouble it is not inefficacious to smear the terminals and nuts with vaseline. When a terminal nut gets set too firmly to enable it being removed by simple pressure, the application of a little dry heat will effect a cure. Some recommend a brushing with ammonia, but if any liquid of the sort be used, great care is needed to ensure that none of it percolates over the cell's surface, or shortage will follow. After charging, the tops of the battery should be washed with water to remove all traces of acid spray and then dried.

In case of sudden failure of a battery—provided it is not due to its being legitimately discharged, or accidentally becoming so either by some short circuit in the wiring or on account of the switch having been left on, resulting in the battery becoming discharged through the coil—the cause can usually be attributed to either (a) fracture of terminals within the case at the point where the lugs join the plates; (b) fracture of same outside the case, and (c) fracture of the case itself permitting the acid to escape. In the event of the break occurring within the case, or so close to it as to make it hazardous to the case to repair the fracture, it becomes necessary to remove the plates from the case. Where the latter is of ebonite or glass, the compound used for sealing it can easily be dug out, but care must be used to prevent damaging the plates during the process. If of celluloid, it is necessary to first scrape or peel off the thin celluloid strip used for binding; then to gently force the point of a sharp knife blade under the seam, i. e., between the cover and side, and gradually work it, by tapping it lightly, along the seam. Care has to be taken when coming near the corners of the case that no undue force is used. It will next be probably necessary to sever the connection with the neighboring cell, either by sawing the lug, if it stands up above the case, or by cutting it with a penknife if below or out of reach of a saw blade.

If the terminal only is broken off, the best way to proceed is: Firstly, remove all traces of oil, file the grit from the lug, then file the top of same flat; next, drill a hole in its center, a little larger, then the shank of the new terminals will be about ⅜-inch deep. The next process is to solder the new terminal in place, using a paste made of resin, powdered and dissolved in methylated spirits, as a flux. Care must, however, be taken not to let any melted solder splash on top of the case, more especially if it is of the celluloid variety, nor should the flame of a blow-lamp or gas-lamp be allowed to come near it. In every instance where the plates are not removed out of the case while the terminals are being soldered it is necessary to do the job as quickly as possible, so as to prevent heating the rubber packing rings, or warping the accumulator case. For this reason, the larger the soldering iron used the better. Both faces of the fracture should now be scraped quite clean and painted with resin solution; then they should be laid closely together, and held so, while being "run" together with a clean and hot soldering iron, first holding the iron till one side of the lug plate has melted, then quickly removing it, giving time for the joint to set. Next turn the plate over, and proceed in the same manner with the other side.

The plates may now be put back into position in the cell, care being taken that the insulators, whether strips of celluloid, corrugated sheets, or ebonite rods, are so arranged that the plates will not be able to touch one another, also that the plates have been replaced in their original positions. The cover should now be fitted in place, and this will be found much easier to do if the lugs over which the rubber plugs have to pass have just been well greased with vaseline. Care, however, must be taken that none of the latter be allowed to get on the edges of the cover or case, as such would prevent, or, at least, render difficult, the cementing up of the case. The seams between cover and case should now be painted with "Acetone," which can be procured at any large chemists at about 50 cents a pint. A fine camel-hair brush will be found suitable for doing so, but too much "Acetone" should not be used, as it may soften the case, and start some of the other seams leaking. If the cover has been a tight fit all round there will be no need for further treatment, but if not, it will be necessary to dissolve some chips of celluloid in some of the "Acetone" till it forms a thick solution, which should then be painted on, and allowed to dry before a second coat is given.

Now all that remains to be done is to join up the lug between the two cells by soldering. In the case of an ebonite or glass cell, after the plates have been fitted in place, the compound which was taken out should be melted and run in. An amateur will at first find difficulty in preventing the melted compound running down over the plates to the bottom of the cells, even when a thin sheet of ebonite is used as a kind of inner cover, but that can easily be overcome by the following method. Get some fine dry sand such as is used to pack tubes before bending them, and fill the cell right up above plates to within ¼-inch of the top of the case; next stand the piece of ebonite tube for air vent in position, but pressed just a little into the sand till it is level with top of case, making sure it flows well around the lugs, and let the cell stand on a level place till the sealing has set. The sand may now be shaken out of the cell through the vent hole, and the cell finally well washed out with water before the new acid is poured in.

If of celluloid, it can easily be repaired by scraping each side of the place of fracture clean, then paint it well with "Acetone," and finally fix a patch of thin celluloid with celluloid solution. A slight pressure should be kept on the patch till it dries, which will not take long. If the case is of either ebonite or glass, it is almost impossible to make a satisfactory repair, although many have found a poultice of marine glue or gutta-percha to effectually seal the leak, but I consider the most satisfactory manner if a repair is contemplated at all is to make a light wood or tin box to fit outside the cell loosely, and to fill in all around with either marine glue or a mixture of three-parts of paraffin wax to one part of resin, carefully melted together, and run in hot.

A final word of caution may be opportunely added here. The accessories market is, in consequence of the general cheapening of motor sundries, at present being glutted with much cheap and unreliable electric gear. For example, it is possible to purchase both an accumulator and coil for less than the price of a good coil for the same purpose.' There are specialists in the branches of trade whose goods are the results of a long series of experiments, and have a sound reputation. They seldom give trouble when the instructions issued with them are followed, and when a complaint is made the makers are usually willing to test for the fault and make good the defect. A cheap electrical outfit, however, is a source of endless trouble. As regards accumulators, and irrespective of their original quality, continued attention to the charging instructions, both as concerns the strength of the acid, charging rate, and the frequency of the recharging necessary to keep them in good conlition, are the chief points to be attended to. The user need not be a skilled electrician, but he is supposed to exercise reasonable care, failing which he need not expect to get satisfactory results.

Water for Cooling Brakes.

When the brakes of a car are provided with means for water cooling from an independent tank, it is essential that the system be supplied with plenty of water at all times, even though the demands upon the brakes be not over severe ordinarily. Because of the ordinarily slight demand upon the supply, chauffeurs are apt to neglect to inspect the system except at rare intervals, and hence there is every likelihood that when touring through mountain regions where it is most needed, overheating will be experienced. Ordinarily this would not appear to be a very serious contingency, yet the proximity of the body flooring to the running brake, makes the danger of fire very great when overheating takes place.

Where the pressure system of feeding the fuel is employed, it cannot be expected to work satisfactorily unless the strainer between the exhaust line and the check valve is kept clean and free from sooty accumulations, and the valve itself gas tight.

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WHEN HIS OIL GAVE OUT

It Gave Him Some Bad Moments, also an Excuse for Story-Telling.

"What are you going to do if you run short of lubricating oil while on the road?" inquired one of a trio of motorists recently. "Is that an extract from one of those 'become a chauffeur in three weeks by correspondence' question papers or is it a real question?" asked one of the others.

"It's serious business I tell you, if you have to answer such questions as that when you find yourself in the position assumed by such a query.

"Suppose for a moment, that you do find yourself on the road with your engine getting hotter every moment—miles from anywhere and everything but the crankcase dry and you only begin to form an idea of how the question presented itself to me not long ago."

"Well, give us the story, I'll take your word for it," lazily commented the third, "although for the life of me," he added "I can't see how anyone who claims to know how to run an automobile, whether he learned it through a correspondence school or not, ever would be guilty of getting himself into such a fix.

"If you are afflicted with occasional lapses of memory like yours truly, not to mention an ingrained habit of going off at half cock whenever a trip or something of the sort is on hand, you might understand it. Just by way of illustration—

"Oh well, never mind the illustration. Let's hear the story. What did you do? That's what I'm interested in finding out" broke in one of the audience of two.

"Not so fast" retorted the story teller. you have to know how bad a fix we were in for oil before you can realize how serious the situation was.

"You remember, I've been threatening ever since last winter to go on a long tour away from the beaten track. Well, I planned it for fully a month ahead and the cost of the various supplies that I laid in would probably have paid the railway transportation and hotel bills of the entire—"

"And you forgot the oil," broke in his interrupter again.

"I did and I didn't, but that's another part of the story. Jim, order this man a box of cigars and a bottle of something strong to keep his mouth occupied," he went on addressing the third member of the party.

"I didn't forget the oil in my calculations by a long shot, because I bought two five-gallon tins of it and a five-pound tin of gear grease. And—I have them yet, or most all of that quantity, for like the dream of an automobile that was hashed up by the revolutionary inventor, there was only one thing wrong about all that oil and grease—it didn't go. At least not when we went and that was the trouble.

"Of course I oiled everything on the car before we left—filled every oil and grease cup, replenished the crank case with new oil and even greased the springs. But in the hurry and bustle of trying to load four times as much paraphernalia on the car as we should have carried—

"Had some skirts along, I'll bet," again broke in the irrepressible.

"You win hands down—no less than three women in the party and they sat up nights three weeks before we started talking over the lovely costumes with which they were going to dazzle all the people at the various resorts that we had marked out on a big colored map to descend upon. You know how the women in the average automobile party look when they strike a hotel after a dusty day's ride and how the women on the veranda stick up their lorgnettes and take it all in. Well, our folks had planned to give some of those rocking chair fleets that adorn the fronts of the houses a surprise.

"No—don't be any more asinine than you can help. They weren't going to wear their finery in the car. Their idea was to use the ordinary outfit during the day and put on a few extra veils when they arrived at a hotel so that no one could see what they looked like or who they were. Take a woman in one of those long baggy dusters—a fierce pair of goggles and all the rest of her lost in a bunch of straggling streamers and complexion protectors and you have a combination that even Sharlock Holmes could not see through.

"Well, Jim," again broke in the irrepressible, addressing himself to the remainder of the audience as if there were no one else present, "we have now learned that three women were responsible for all those trunks and other things but what's that got to with what's the captain's name? Oh, I mean, what are you going to do when the gasolene gives out?"

"That isn't it either? Well, go ahead, but remember we can get 350 pages of automobile novel for $1.09, so don't make it too long and ring the gong when you come to the last lap—the last chapter I mean.

"We made an early start and headed due south," went on the story-teller unruffled, and reached pretty close to the southern border of Pennsylvania before halting for the night, a matter of close to 150 miles, I should say. Stopped at a little town called Oxford, not far from the Susquehanna River.

"Whatever got into me I don't know, but somehow or other I never so much as gave the matter of oil a thought.

"Jim, that was no water wagon, was it?" openly commented the audience.

"I carry a couple of good sized oil cans and I had refilled all the small oil cups once during the day before, but that morning forgot the whole business as clean as a whistle. With the travelling that we had mapped out that day I never would have left Oxford without a supply of oil even if I had to go back to Philadelphia for it—had I known it.

"Good thing you added that last" came out of the cloud of cigar smoke.

"And we ran all that morning right up to lunch time without noticing anything wrong, and even started away from that stop without giving the matter of oil a thought.

"Worse and more of it. She must have been along,"drifted out of the blue cloud.

"Well, to make a long story short, we must have run another twenty-five miles and then a blind, deaf and dumb man could have noticed that the engine was getting hot as a furnace and beginning to labor. We stopped right there and put the motor out of business and then it was my turn to answer the question I have just put to you, for it didn't take more than ten minutes to find out that my generous supply of oil was not where it would come to any harm, nor do us a great deal of good. It wasn't there and then of course, the women pouted and made faces. Called me a stupid thing and all that for forgetting the oil. Had a regular Mrs. Caudle's curtain lecture except that there were three of them to suggest what the others didn't think of. They really couldn't see why I couldn't run without oil anyway. It was either a very poor machine or a mighty low grade mechanic, or I could dispense with such a trivial thing. Then what was the matter with salad oil. Wouldn't the old thing run on a little olive oil or cottonseed? I could get that at any corner grocery.

"There wasn't even a house in sight for that matter and I didn't relish the prospect. I wasn't going to gum things up just to save a few hours, so I didn't pay much attention to the volume of suggestions.

"Here's where the wonderful clever chauffeur got himself out of a bad fix," commented the audience, or rather one-half of it, while the other half asked:

"Well, how did you run the car 'miles from nowhere' without any lubricating oil?"

"I didn't. I walked two miles after having told the women to sit down and be good and luck was with me. I stumbled right onto the summer residence of a wealthy Philadelphian and there were no less than three cars in his private garage, one of them the same make as mine. And even more fortunately he was there at the time. Within ten minutes after I arrived there I was on my way back in one of his cars with a tin of oil and I hope you two smart Alecks will have as good luck if you ever get caught in a similar hole."

"The A B C of Electricity" will aid you in understanding many things about motors that may now seem hard of understanding. Price, 50 cents. The Motor World Publishing Co., 154 Nassau Street, New York.

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The Week's Patents.

830,423. Water-Cooling Device. George Fernwell, New York, N. Y., assignor to The Metal Stamping Company, New York, N. Y., a corporation of New York. Filed March 14, 1906. Serial No. 305,944.

Claim.—1. A receptacle having, a front and rear plate pierced with hexagonal holes, a plurality of open hexagonal tubes arranged in parallel rows and having their corresponding sides parallel, the ends of which tubes are secured in said holes, so that the vertical spaces between said tubes are approximately twice the width of the diagonal spaces, and the tubes of each row have one of their angles approximately beneath the center of said vertical space.

830,460. Transmission-Gearing. Terry Stafford, Topeka, Kans. Filed April 4, 1906. Serial No. 309,871.

Claim.—1. The combination with the clutch and the shifting gear of a transmission-gear; of means for normally closing the clutch, a lever for opening the clutch, a lever for opening the clutch, means for moving the said lever in one direction, and means for serving the twofold purpose of shifting the gear and controlling movement of the lever in the other direction.

830,467. Non-Splitting Tire. Mark Vivian, Chiswick, London, England. Filed July 27, 1903. Serial No. 167,193.

Claim.—1. In a non-slipping tire or tread, the combination with sections or strips of hard rubber; of interposed strips or sections of softer rubber, such alternate sections being united chemically during manufacture at their meeting edges to form a continuous inseparable piece having a perfectly smooth or flush surface which contacts with the ground, substantially as specified.

830,488. Wheel-Tire. Nelson Beckwith, Somerville, Mass. Filed July 25, 1904. Serial No. 217,957.

Claim.—1. The combination with a wheel, of a tire composed of sections of yielding material having lips projecting from the opposite ends thereof, clamping devices interposed between said sections and comprising a rod or stem, a web interposed between said lips and against which said lips abut and side flanges projecting from said web to engage the upper face of said lips, and means engaging said stem or rod to secure said clamping devices to said wheel, substantially as described.

830,497. Circuit-Closing Device for Speed-Indicators. Hans Dahl, Berlin, Germany. Filed June 20, 1901. Serial No. 65,350.

Claim.—1. The combination with a rotating body, of a contact rotating with and moving outwardly from the axis of the rotating body by centrifugal force, spring means opposing the movement of the contact and electrical means for automatically indicating various positions of the contact accordingly to the speed of rotation.

830,556. Cooling Attachment for Explosive-Engines. Horace G. Alexander, Londonderry, Vt. Filed Jan. 22, 1906. Serial No. 297,346.

Claim.—1. A cooling attachment for explosive-engines, comprising a hollow head arranged to be placed contiguous to the cylinder-head of an explosive-motor, and spaced pipes carried by the head and arranged to surround such cylinder, said pipes being separate from the cylinder and having perforations through their inner sides.

830,600. Motor-Car. Moses W. Kouns, Washington Court-House, Ohio, assignor to The Ohio Manufacturing Company, Upper Sandusky, Ohio, a corporation of Ohio. Filed March 8, 1906. Serial No. 304,905.

Claim.—1. In a structure of the character described, the combination, with a friction-wheel driven from the engine, a second friction-wheel movable toward and from the same and from which the driving-wheels are actuated, of a reversing friction-wheel, a shaft supporting said reversing friction-wheel, bearings for said shaft slidably mounted in a plane transverse to the plane of the axes of the other friction-wheels, and means for shifting said reversing friction-wheel toward the other friction-wheels when the same are out of engagement, and for shifting the same away from such friction-wheel when the same are in engagement with each other, substantially as described.

830,660. Exhaust Muffler. Otto Goldman, San Francisco, Cal. Filed June 8, 1905. Serial No. 264,267.

Claim.—1. In an exhaust-muffler the combination of a casing having at one end thereof a neck constituting an inlet, a tapered tube coincident with said neck having a plurality of apertures, an intermediate tapered case surrounding said tube, out of contact with said tube and casing longitudinally and having end openings, a neck constituting an outlet at the opposite end of said case, substantially as described.



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Fined on His Own Evidence.

"The man from Missouri" has been outdone by a citizen of Chicago, who declared that his own judgment of his car's speed was vastly superior to any two policemen with stop watches, when he was arrested for exceeding the legal limit. Justice Boyer, of Evanston, Ills., Chicago's motorphobic suburb, before whom he was brought, has had more than enough experience in the way of fining speeders to qualify him as an expert in this line, and instead of taking the policemen's evidence as conclusive, was agreeable to a trial looking to the substantiation of the motorist's professed degree of skill.

"I can tell within one-sixteenth of a mile at what rate of speed I am traveling," confidently announced the defendant.

"All right; we'll show you," was the magistrate's answer.

In order to make the trial conclusive, he was permitted to run his car over the measured quarter-mile course several times while his speed was checked with both stop watches and a speedometer. In none of the three trials did his wonderful judgment bring him nearer than from one to five miles to the actual result.

"I've been shown," was his only comment as he gave up $15, and departed a sadder but a wiser man while the court attendants chuckled almost audibly.

Adding to the Slanguage.

From time to time there are additions to the motoring vernacular, or rather adaptations of its terms to the slang of the moment, so that the automobile will soon be responsible for a much more extended vocabulary than golf or other pastimes have given rise to.

Among some of the more recent terms are "cast in pairs," as descriptive of a newly engaged couple; "a long run on the high speed," for happy married life, and so on. By this means domestic discord becomes "clashing of gears"; the man who runs the house is "heavy on the brake" and his voluble partner is said to "open her throttle wide," while divorce proceedings are denominated "declutching." When a man is "stung" he has "skidded" or "had a puncture" and when he gives way to his temper has had his "carburetter tickled." The man who stutters "misfires" and women become known as "neat little runabouts" or "large touring cars" according to their size.

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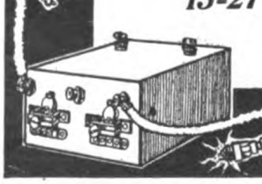
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Mr. Manufacturer, Jobber, Dealer and Owner

There is a reduction in chain prices for 1907. Get our new prices on the strongest chain in the world; the Brampton chain, manufactured by Brampton Bros., established since 1852. Also new prices on horns, tire irons, lamp brackets, jacks, etc. Let us figure with you.

THE BRAMPTON



Which is made of self-hardening steel with large spun rivets, and all parts polished. so that it fits and revolves on sprockets without friction.

HAS PROVEN DECIDEDLY SUPERIOR.

The matter of repairs and replacements is simple.

YOUR CHOICE.

The Brampton chain is the same price as the others to manufacturers, jobbers, dealers and users. All standard sizes in stock to fit American and foreign cars.

CHAS. E. MILLER, MANUFACTURER, JOBBER, EXPORTER AND IMPORTER,
HOME OFFICE: 97-99-101 READE ST., NEW YORK CITY.

BRANCHES: New York City—924 Eighth Ave.
Philadelphia, Pa.—318-320 N. Broad St. Boston, Mass.—202-204 Columbus Ave.
Cleveland, O.—406 Erie St. Detroit, Mich.—227½ & 229 Jefferson Ave. Buffalo—824 Main St.



TRUFFAULT-HARTFORD
SHOCK ABSORBER
TRADE MARK

BE ECONOMICAL—ENJOY EVERY MILE OF THE RIDE

Equip your car with the famous Truffault-Hartford Shock Absorber, the Pioneer and the Best.

Increases Speed.
Prevents Breaking of Springs.
Doubles Life of Tires.
Makes Cobblestones and Rough Roads Seem Like Asphalt.
Prevents Lost Traction, Saving Running Power.

ACTUALLY DOES MORE THAN WE CLAIM

Cars Under 1,500 lbs. $40. Four Suspensions.

FULLY GUARANTEED

Cars over 1,500 lbs. $60. Four Suspensions.

POSTAL BRINGS PARTICULARS

HARTFORD SUSPENSION COMPANY

E. V. HARTFORD, Pres. 67 Vestry Street, New York.

Applications made at Garage, 212-214 West 88th St., New York.

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THE MOST PERFECT REPAIR EQUIPMENT IN THIS COUNTRY

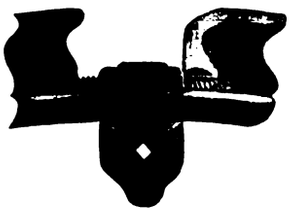
WE GUARANTEE ALL WORK THAT WE UNDERTAKE

Tires sent us for repair, if unsuitable, will be purchased for their rubber value if desired. However, we prefer to repair them if we can guarantee them.

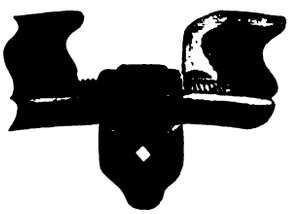


Healy Leather Tire Co.
88-90 Gold Street
Healy Building
NEW YORK CITY

UPTOWN BRANCH
1906 Broadway
New York City



Pioneer Steel Wheel and Universal Rim Manufacturers of the World



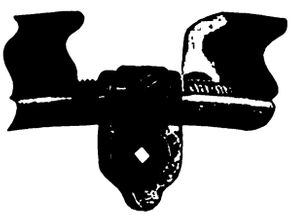
Our Output of Detachable Bead Rims is Greater than the entire Output of all other Makers Combined

SOLE MANUFACTURERS OF THE

Hartford Universal Rim

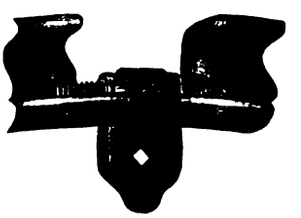
For DUNLOP and CLINCHER TIRES

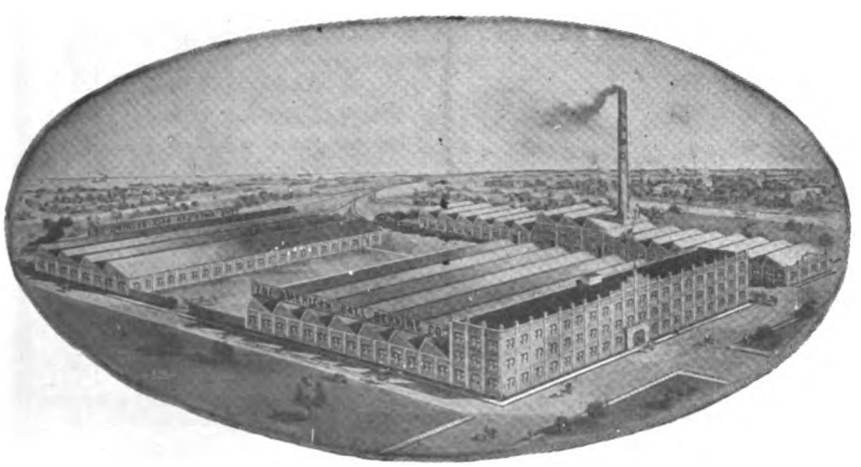
Used Also By Two Other Leading Tire Factories



The four cuts in this advertisement show the new turnbuckle to be fitted, for 1907 and thereafter, to all Hartford Tires, both Dunlop and Clincher type. We make it!

Midgley Manufacturing Company
COLUMBUS, OHIO





The output of complete Front and Rear Automobile Axles of this plant exceeds the capacity of all competition combined.

THE American Ball-Bearing Co.
L. S. & M. S. Ry. & Edgwater Park
CLEVELAND, OHIO, U.S.A.

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SOMETHING'S WRONG



and the question is to find it. The Veeder Odometer readings show that it is taking half as much gasoline again to run the car 100 miles as it did a month ago. That means lack of lubrication somewhere or faulty engine operation. Anyway, it's serious, and it's lucky the Veeder Odometer reading showed it. A Veeder is a mighty valuable instrument on a car.

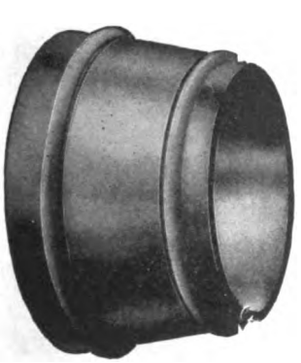
"It's nice to know
How far you go."

—Veeder Odometers.

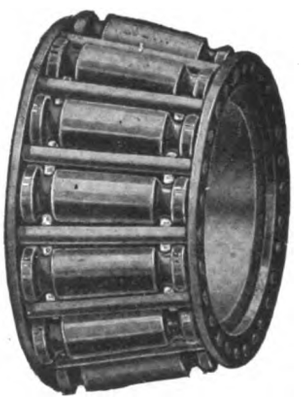
THE VEEDER MFG. CO., 26 Sargeant St., Hartford, Conn.

Makers of Cyclometers, Odometers, Tachometers, Tachodometers, Counters and Fine Castings.

INCREASES THE POWER; REDUCES THE STRAIN



Cone.



Cone and Rollers.



Cup.

THOSE ARE TWO OF THE LARGE PURPOSES WHICH ARE SERVED BY

TIMKEN ROLLER BEARINGS

They are such far-reaching purposes as to induce every person about to purchase a car, to discover whether those bearings are applied to it; and if not, why not.

TIMKEN ROLLER BEARING AXLE CO., - - - Canton, Ohio.

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Hartford Solid Motor Tire



¶ Solves the problem between the axles and the ground for all power-driven commercial vehicles. New descriptive booklet, now in press, should be in the hands of every business man interested in this new and far-reaching development in transfer and short-distance transport work.



¶ Better send for it, not only for the practical information it contains, but also to find out how our experience and facilities are at the command of any man or firm contemplating the adoption of the power driven wagon. This stands a good chance, not only to bring new business to us, but to save money (and perhaps some failures also) to yourself.

¶ It's a very important part of the whole scheme of "auto transportation," and we are confident of having by far the best solid tire proposition on points. Investigate and judge for yourself.

THE HARTFORD RUBBER WORKS CO., Hartford, Conn.

Branches: { BOSTON, CHICAGO, NEW YORK, PHILADELPHIA, BUFFALO, CLEVELAND, DETROIT, DENVER, SAN FRANCISCO

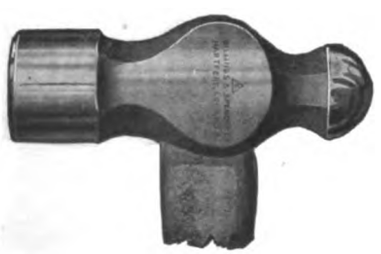
FOR YOUR AUTO KIT.

The "B. & S." Ball Pein

HAMMER

Drop-Forged of Special Steel.

Hickory Handles.



The Hammer that will stand the racket of all-around usage on your car or in your garage.

THE BILLINGS & SPENCER CO., Hartford, Conn.

Whitlock Coolers

FOR 1907

WILL BE THE STANDARD FOR HIGH-GRADE CARS

Do not waste time and money on experiments.

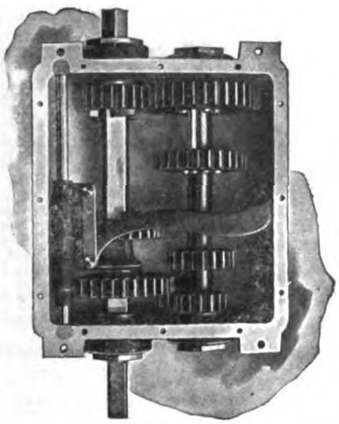
If prompt deliveries appeal to you, you will be interested to know that we already have **the** largest factory in America engaged in manufacturing cellular coolers, and that we are now erecting a second and larger building which will more than double our present capacity.

In addition to cellular coolers, we make **disc radiators** of several types, **hoods, exhaust** and **inlet pipes** and **headers, muffler** pipes and bent and brazed work of every description for automobiles.

THE WHITLOOK COIL PIPE COMPANY,
HARTFORD, CONN.

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BROWN-LIPE GEARS



Irreversible Steering.

Bevel and Chain Drive Differential.

Many Sizes and Models.

Sliding Gear Transmission.

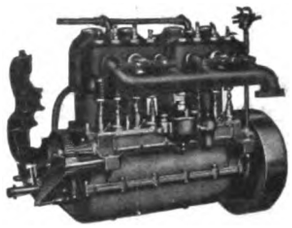
K. FRANKLIN PETERSON, 166 Lake Street, Chicago, Ill. } Direct Factory Salesmen.
THOS. J. WETZEL, 29 West 42d Street, New York. }

CHAS. E. MILLER, 97 Reade Street, New York; Branches in Philadelphia, Boston, Cleveland, Buffalo and Detroit. } Sales Agent Carrying Stock.

POST & LESTER CO., Hartford, Conn., Eastern Sales Agents

BROWN-LIPE GEAR CO., 200 S. Geddes St., Syracuse, N. Y.

A "CONTINENTAL" MOTOR



Type "O" 45 H. P.

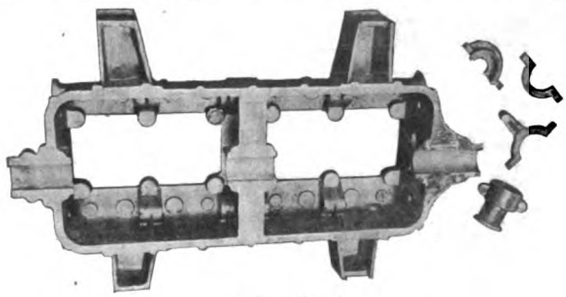
is the only one to consider when you want the highest grade, lightest and most durable and efficient motor for your car. **Cut shows our 45 H. P. Motor.** Also four other sizes. Sold separately or in combination with our "Continental" power plant, including Clutch and Transmission.

Our new Muskegon plant, in addition to our Chicago shops, insures prompt deliveries.

Don't order before getting our catalogue and prices.

Continental Motor Manufacturing Co.
MUSKEGON, MICH.
K. F. PETERSON, Direct Factory Representative, 166 Lake St., Chicago, Ill.

Parsons' Manganese Bronze Castings.



Sole Makers
THE WILLIAM CRAMP & SONS SHIP & ENGINE BUILDING COMPANY, Philadelphia, Penna.

KINWOOD AUTOMOBILE PARTS.

ONE QUALITY—THE BEST.

OUR LEADERS:
Kinwood Perfection Radiators
and
Kinwood Mechanical Oilers.

KINWOOD PRESSED STEEL SPECIALTIES:
Frames, hoods, dashes, fenders, gasolene and water tanks, mufflers dust and drip pans, radiator fans, gasolene gauges, fittings, couplings, etc., etc.

Large facilities and dependable deliveries.

K. FRANKLIN PETERSEN, 166 Lake St., Chicago, Western Representative.
THOMAS J. WETZEL, 11 Warren St., New York, Eastern Representative.

THE KINSEY MFG. CO., Dayton, Ohio.



The Springfield Motometer
TELLS THE TRUTH

Because thoroughly constructed on correct mechanical principles. Absolutely accurate; all speeds; pointer always steady. Combines trip and season odometer. Price fair to us, fair to you. With complete fittings for any car:

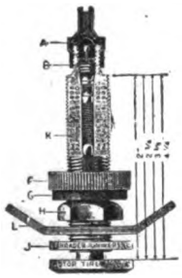
50 Mile Instrument, $45.00
60 Mile Instrument, $50.00
Either size without Odometer, $10.00 less.

Ask for catalogue and booklet.
We can now make prompt deliveries.

The R. H. Smith Mfg. Co.
Patentees and Manufacturers
Springfield, " " Mass.
Established 1865. Incorporated 1883.

SCHRADER UNIVERSAL VALVE.

Trademark Registered.



SIMPLE AND ABSOLUTELY AIR TIGHT.

MOTOR TIRE VALVES, as shown in cut, are made in four lengths as shown. Cut is exactly half size of the 2 in. valve.

SUPPLIED TO THE TRADE BY ALL TIRE MANUFACTURERS.

MANUFACTURED BY

A. SCHRADER'S SON., Inc., Nos. 30-32 Rose Street, New York.

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Cheap Materials

In the South, Manufacturers of all kinds are in position to Assemble their Raw Materials Cheaply, while Exceptional Transportation Facilities place them in touch with all the Great Markets, North, East and West.

THE SOUTHERN RAILWAY

Traverses Sections of the South which are growing faster than any other part of the United States.

If looking for a location, or an investment, write

M. V. RICHARDS, Land and Industrial Agent,
Southern Railway Company, Washington, D. C.

W. A. MOYER, Agent,
221 Broadway, New York City.

THE A-Z CO. **RADIATORS** THE A-Z CO.

HOODS, TANKS, MUD GUARDS, MUD APRONS, METAL DASHES, MUFFLERS, METAL HAMPERS, SPROCKET STEPS AND COVERS, ALUMINUM BRAZING, REPAIRING OF ALL KINDS IN OUR LINE.

THE A-Z CO.,
Office and Works: 527-529 W. 30th St., NEW YORK CITY.

THE
London Tops



Style
Durability
Quality

LONDON AUTO SUPPLY CO., 1233 Michigan Ave., Chicago

STANDARD ROLLER BEARING COMPANY
PHILADELPHIA, PA.

Manufacturers of Steel, Brass and Bronze Balls, Ball Bearings, Roller Bearings and Automobile Axles

Send for New Catalogue No. 16

TOURING CAR

THE F. B. STEARNS CO.,
CLEVELAND, OHIO, U. S. A.

Consecutively Numbered Name Plates

DO YOU USE THEM?
We make them in either embossed or depressed figures.

THE CHANDLER CO., Inc.,
SPRINGFIELD, MASS.

The Hardy Troubleless **Mitchell** $1800

Will do anything any car will do and do it Better and Quicker. We'll PROVE this on the road any time you say. Call at any Mitchell Branch any time and be "shown." Mitchell Motor Car Co., 41 Mitchell Street, Racine, Wis.
Member American Motor Car Mfrs.' Ass'n, N. Y.



Avoid Annoyance

The simplest device for inflating tires with car standing or in motion. Send for illustrated booklet.

THE TILEY-PRATT CO.
ESSEX, CONN.

"DIAMOND" CHAINS

Outnumber, Outwear and are Stronger than Others.

Write for Catalogue.

Diamond Chain & Mfg. Co.,
INDIANAPOLIS, IND.

Automobile Material and Supplies.

We manufacture the
Climax Motor Lamps, Climax Auto Cells.
Send for Catalogue.

SIBLEY & PITMAN,
26 Warren Street, NEW YORK.

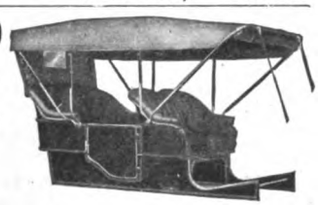
ALUMINUM BODIES.
J. M. QUINBY & CO.
EST. 1834.
Carriage Builders, NEWARK, N. J.

Orient Friction-drive Buckboard.



Price, $400.
Agents wanted.
WALTHAM MFG. CO.
Waltham, - Mass.

Springfield Top
(Pat 1895)
ALUMINUM BODIES.
Springfield Metal Body Co.,
366 Birnie Avenue, Springfield, Mass.



Classed as an accessory the shock absorber really comes closer to being a necessity than any other known motor car appliance.



The Diezemann Shock Absorber

is by far the most practical of all absorbers. It is provided with a self-lubricating system that definitely places it above the plane of all other frictional retarding devices. It does not require regulation when once properly adjusted. Satisfactorily used on the racer, touring car or commercial vehicle.

New booklet upon application

Diezemann Shock Absorber Co.

1307 Hudson Street, HOBOKEN, N. J.

THE NEW HOTCHKISS

Built like a gun by gunmakers.

THE DE LEON
A French Car at American Price.
ARCHER & CO.
1597 Broadway, New York

Acme
From Steel Bar to Finished Car

30 H. P. 5 Passenger, $2,750.
45 H. P. 7 Passenger, $3,500.
CATALOGUE MAILED ON REQUEST.
ACME MOTOR CAR CO., Reading, Pa.



How Are Your Batteries?

A CONNECTICUT VOLT AMMETER will tell you.
Guaranteed, and the price is right. Send for catalogue and trade discounts.
Volt Ammeter, $6.00. Ammeter only, $4.00

CONNECTICUT TELEPHONE and ELECTRIC CO., Inc
MERIDEN, CONN.

BALDWIN CHAINS AND SPROCKETS

The Baldwin Chain Company
— MAKE —
Automobile Chains, Sprockets, Spur and Bevel Gears.
—
Baldwin Chain & Mfg. Co.,
Worcester, Mass., U.S.A.

HYATT ROLLER BEARINGS
TURN FRICTION INTO ENERGY
HYATT ROLLER BEARING COMPANY
HARRISON NEW JERSEY
ARE YOU FROM MISSOURI?

THE MOTOR WORLD PUBLISHING COMPANY,
154 Nassau Street, New York.

Enclosed find $2.00 for which enter my subscription to

The Motor World

for one year, commencing with the issue of _____

Name _____

Address _____

_____

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Stamped Parts

FOR AUTOMOBILES.

COLD PRESSED WORK

In Steel, Brass and Aluminum.

We make a specialty of difficult drawing in heavy steel and in stampings to replace malleable iron and brass castings.

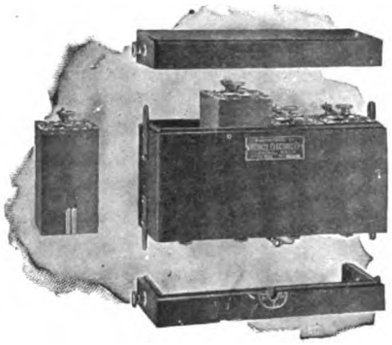
THE CROSBY COMPANY,

BUFFALO, N. Y.

Heinze Motor Car Coils

WILL INCREASE THE POWER OF YOUR ENGINE FROM 10 TO 15%.

Are the most thoroughly constructed coils on the market producing the hottest spark and having the most rapid vibrator.



ARE GUARANTEED AGAINST BURNING OUT.

Send for our complete catalogue Sup. No. 12

Manufactured by

HEINZE ELECTRIC COMPANY,

Factory, LOWELL, MASS.

Uphill or Downhill

COLUMBIA IGNITOR DRY CELLS

You will get there and you will get back if you use COLUMBIA IGNITOR DRY CELLS

NATIONAL CARBON COMPANY

CLEVELAND, OHIO

GRAY AND DAVIS

"Makers of Smart Automobile Lamps."

Be Sure Your Car is Equipped with Them.

AMESBURY, MASS.

COOLERS FENDERS



HOODS EASTERN FACTORY, NEWARK, N. J. TANKS

THE LAMBERT

Famous Friction-Drive Car.

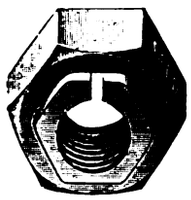
Models and Styles to Suit the Purchaser.

PLEASURE CARS, RUNABOUTS and TOURING CARS, and Lambert Patented Friction Drive COMMERCIAL TRUCKS. Prices $900 to $3000. Write for particulars.

☞ Some attractive agency propositions not yet closed.

THE BUCKEYE MFG. CO., Anderson, Ind., U. S. A.

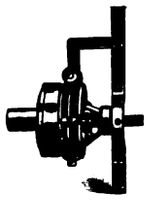
Members A. M. C. M. A.



Roadside Troubles

One little nut dropping from a bolt will put your car, self and party out of the road, out of patience and out of words suitable to express your feelings. Why take the chance of being on the outs when **COLUMBIA LOCK NUTS** will hold tight and insure of your bringing all of your car home? Send us a two-cent stamp, **SIZE** and **THREAD**, and we will send you a nut to put on that bolt you had to get out and tighten yesterday.

COLUMBIA NUT & BOLT CO., Inc., Bridgeport, Conn.



The Ball Improved Transmission

and REVERSE GEAR for AUTOMOBILES AND MOTOR BOATS.

MADE ONLY OF SPUR GEARS. Patented April 19, 1901; Nov. 3, 1903; Jan. 12, 1904; Feb. 23, 1904.

NEW YORK GEAR WORKS

56 Greenpoint Ave., Brooklyn, N. Y.

Western Agents: J. H. Neustadt & Co. St. Louis, Mo.

1,000 to 2,500 Miles

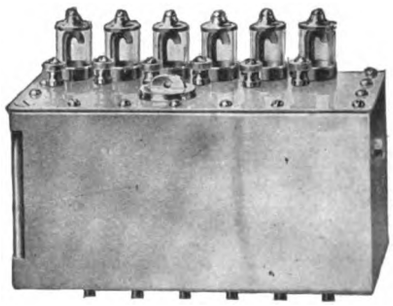
Muller Porous Plate Igniter Storage Batteries

Will never miss at high speed. Write for price list.

The Muller Porous Plate Accumulator Co.

205 West Forty-first St., New York, N. Y.

FORCE FEED LUBRICATION.



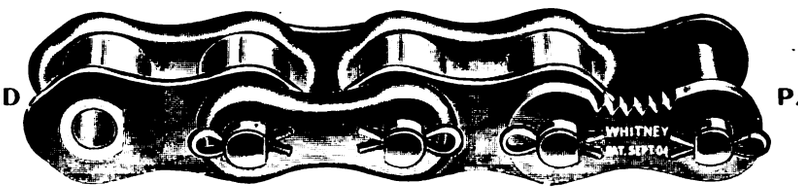
Constant Sight Feed. No Liquids.

E. J. DAY & CO., Pacific Coast Distributers. 12th and Madison Streets, Oakland, Calif.

McCORD & CO., 1407-80 Old Colony Bldg., CHICAGO

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"Whitney" Chains in the GLIDDEN Contest were used more extensively than all others combined and made their customary records for efficiency.

PATENTED  PATENTED

Springfield Mass., August 10, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—In reply to yours of the 9th, we are pleased to advise you that we used Whitney chairs on both our pleasure and commercial vehicles in the Glidden Tour, both of which finished with perfect scores, having no trouble whatever with chains, and without the slightest care or attention the same finished the trip in perfect order.

Yours very truly, KNOX AUTOMOBILE COMPANY.

New York Office, August 22, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—I beg to acknowledge receipt of your favor of the 21st inst., with reference to the Whitney chains which were used on the Mark 47 Columbia car that I drove in the Glidden Tour. Replying, would say that we experienced no difficulty or trouble at all with the chains and the test was severe indeed.

Yours very truly, ELECTRIC VEHICLE COMPANY.

Buffalo, N. Y., September 4, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—The two Thomas cars which competed in the Glidden Tour, one finishing with a perfect score and the other with two points against it on account of a technicality, were both equipped with Whitney chairs. These chains were entirely satisfactory and we shall continue to use them for 1907 as we have in the past.

Very truly yours, E. R. THOMAS MOTOR CO.

Cleveland, Ohio, August 15, 1906.

WHITNEY MFG. CO.,

Gentlemen—Replying to yours of the 13th, beg to say that neither of our two cars entered in the Glidden Tour experienced the slightest chain trouble, nor did our two 1907 cars which we drove from Cleveland to Bretton Woods in four days, and later won from all comers in all three events in the Crawford Notch Hill Climb. We beg to say that we are running the same chains on these cars at present.

Very truly yours, THE F. B. STEARNS CO.

Lansing, Mich., August 15, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—Referring to your letter of August 13th, wish to state that we used Whitney Roller Chain on the REO car in the Glidden Contest and it proved very satisfactory, having no trouble whatever from that source.

Very truly yours, REO MOTOR CAR COMPANY.

Hagerstown, Md., August 15, 1906.

WHITNEY MFG. CO.,

Gentlemen—Answering your inquiry of the 13th as to whether we experienced any trouble with the chains on our Model "C" touring car, which was sent through the Glidden Tour, take pleasure in stating that the chains gave excellent service and that no trouble whatever was experienced throughout the run.

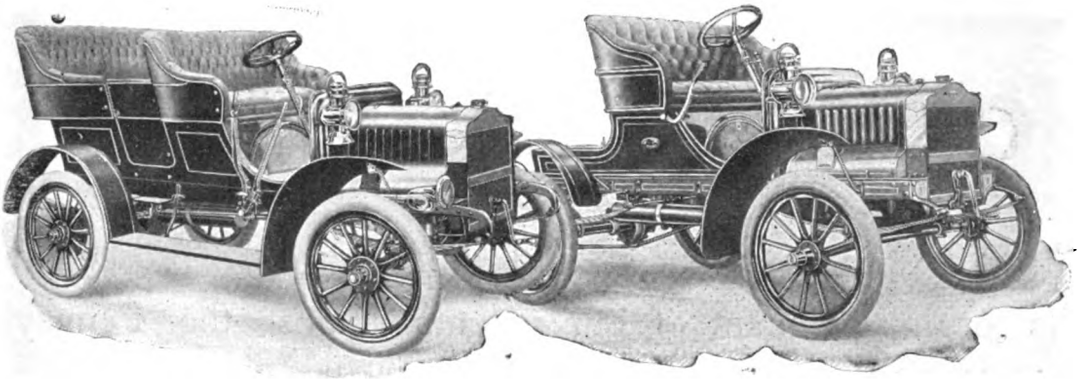
Yours truly, CRAWFORD AUTOMOBILE COMPANY.

THE WHITNEY MFG. CO., Hartford, Conn.

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The "Maxwell"

20 H. P.
TOURING CAR
$1,450



10 H. P.
TOURABOUT
$780

4 cars, 1 doctrine, 1 result—satisfaction

Multiple Disc Clutch. Three-point Suspension of Motor and Transmission (Unit). Metal Bodies. No Noise. No Vibration.
Equipped with Ajax Tires, Guaranteed for 5,000 Miles Riding

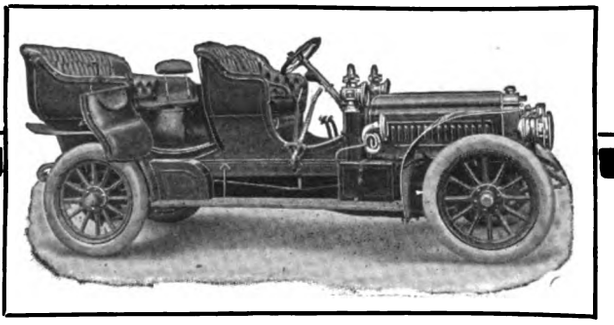
WRITE DEPARTMENT 2 FOR CATALOGUE.

MAXWELL-BRISCOE MOTOR COMPANY

• Member American Motor Car Manufacturers' Association, N. Y. •

PAWTUCKET, R.I. — **Main Office and Factory: TARRYTOWN, N. Y.** — CHICAGO, ILL.

Branches in all large cities.



STOP JUST A MOMENT!

The car that can do what the THOMAS has done in the past few weeks is a car you've GOT TO CONSIDER FOR 1907. The 1907 model will be in the streets by the time this reaches your eye.

But in the meantime the 1906 car has been making history. It has been smashing records that count—records not merely of speed, but records that stand for extraordinary endurance. "Reliability" is Mr. Thomas' hobby, and his favorite word—and certainly reliability is strikingly expressed in this story of triumphs.

THE WORLD'S 50-MILE RECORD. At Point Breeze Park, Aug. 22nd, E. R. Kelley, driving regular stock Thomas, driven daily by the owner, G. L. Mayer, of Philadelphia, broke the world's 50-mile record, doing the distance in 1 hour 3 minutes and 19¾ seconds.

THE WORLD'S 50 MILE RECORD No. 2. Best previous world's record for 50 miles, made by Thomas at Chicago, July 4, 1906, in 1:06:19.

WON $5,000 TOURING CAR CONTEST. Atlantic City, Sept. 3rd, Thomas won $5,000 Touring Car Contest (regular equipment, carrying five people), defeating Pierce, Packard and Winton.

WON THE PRICE HANDICAP. Price Handicap, four-cylinder touring cars, Atlantic City, Sept. 3rd, carrying five passengers. $4,000 car in scratch. 50 H. P. Thomas, first; 50 H. P. Thomas, second; 30 H. P. Mitchell, third; 35 H. P. Maxwell, fourth.

WON $1,000 MATCH RACE. Sept. 3rd, Atlantic City, to S. Smith, the Philadelphia millionaire, driving a Thomas, defeated 30 H. P. six-cylinder Franklin owned by Samuel W. Moon, of Philadelphia, winning a purse of $1,000.00.

The same splendid qualities that accomplished these results, broke the 25-mile stock touring car record at St. Louis and made a perfect score on the Glidden Tour and then back to Buffalo from Bretton Woods, giving perfect satisfaction to 1018 owners in all parts of America every day in the year.

Justly—by sheer force of merit—the new and greater THOMAS is certain to be THE PRIME FACTOR for 1907.
Watch for particulars of the New THOMAS.

THE E. R. THOMAS MOTOR COMPANY

Members Association of Licensed Automobile Manufacturers.

1416 Niagara Street, Buffalo, N. Y.

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TO SELLERS AND USERS

OF

CLINCHER TIRES

We have commenced and are vigorously prosecuting suits for infringement of our patents against the Pennsylvania Rubber Company and the Michelin Tire American Agency, Inc., on account of the sale of Clincher tires.

The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J Patents:

G & J Tire Co.
Hartford Rubber Works Co.
Morgan & Wright.
B. F. Goodrich Co.
Diamond Rubber Co.
Goodyear Tire & Rubber Co.
Fisk Rubber Co.
International Automobile & Vehicle Tire Co.
Continental Caoutchouc Co.

G & J TIRE CO.

Indianapolis, Ind.

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1907 *Locomobile* Cars

Contain many features which increase the reliability and efficiency of a car, world famous for its intrinsic excellence and high quality. For 1907 we will build two models, both thoroughly tested and highly developed touring cars:—TYPE E a most convenient size to drive and maintain and can keep up with the fastest touring cars in a day's run. TYPE H, a touring car de Luxe. Powerful and luxurious.

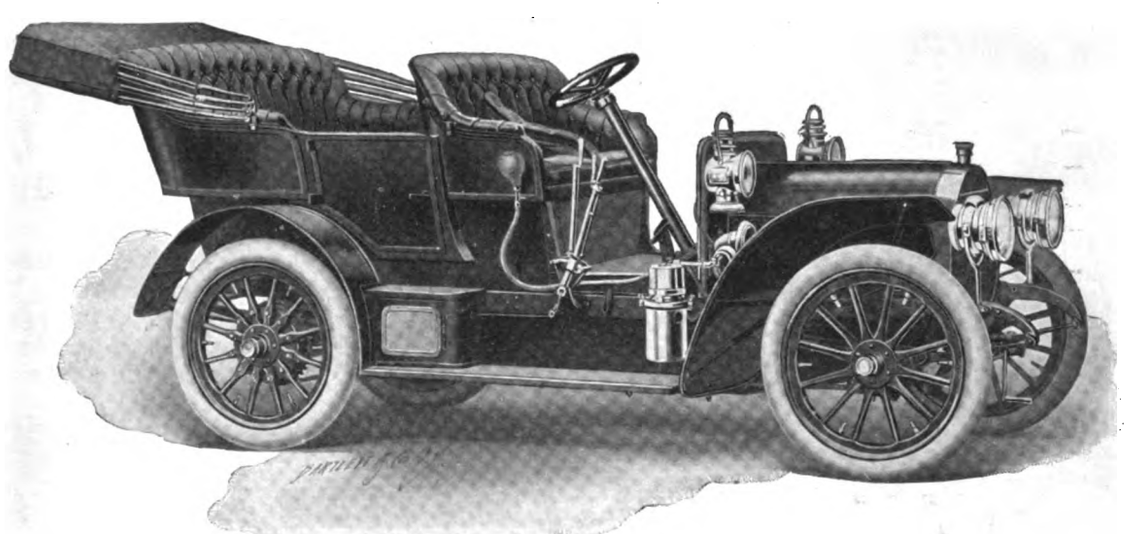
TYPE E. 20 H. P. $2800.

4 cylinder motor, make-and-break ignition. 3 speed transmission, progressive system. Hess-Bright ball bearings throughout with exception of motor. 96" wheel base. Seats 5 persons comfortably. Tires 32 x 4 all four wheels. Fully equipped and ready for extended touring.

TYPE H. 35 H. P. $4500.

4 cylinder motor, make-and-break ignition. 4 speed transmission, selective system. Hess-Bright ball bearings throughout with exception of motor. 120" wheel base. Seats 7 persons comfortably. Tires: front 34 x 4; rear 34 x 4 1-2. Fully equipped and ready for extended touring.

SOME IMPORTANT DETAILS. Low tension magneto with working parts enclosed and protected. Igniter anvil made in solid unit. Mechanical Lubricator warmed by exhaust, out of the way, yet accesible for filling. Emergency brakes enclosed and protected. Body ironed for top and provided with bras coat rail, adjustable foot rail and other conveniences.



Locomobile **— Type "E" $2800.**
Top Extra

The *Locomobile* Company of America, Bridgeport, Conn.
Members Association of Licensed Automobile Manufacturers.

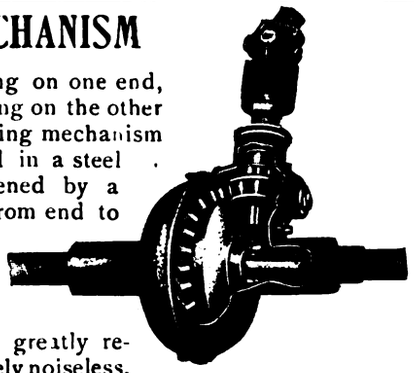
NEW YORK, Broadway and 76th St.
PHILADELPHIA, 249 N. Broad St.
Branches
BOSTON, 15 Berkeley St.
CHICAGO, 1354 Michigan Ave.

Printed matter mailed on application to factory or any other branch office.

Buyers desiring to inspect our cars in the making, welcome at factory.

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HAYNES REAR AXLE and DRIVING MECHANISM

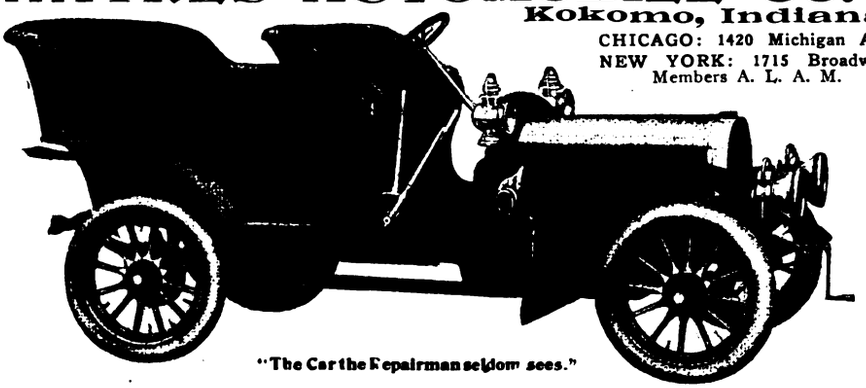


ALL the bad features of beveled gears and side chains and sprockets are overcome in the Haynes construction. The axle is a 1½-inch shaft of nickel steel of 100,000 lbs. tensile strength and 70,000 lbs. elastic limit. One wheel is keyed to this nickel steel shaft, which also bears one member of the differential; over the opposite end is a close-fitting steel sleeve extending to the center, on its outer end is keyed the other wheel, while the other member of the differential is attached to its inner end. Secured to the differential is a large beveled sprocket gear (the driving gear of the car) which is driven by a pinion keyed to the rear universal joint, on which rollers take the place of teeth. This pinion has a double roller bearing on one end, and a long, plain bearing on the other end. The entire driving mechanism and axle are enclosed in a steel housing and strengthened by a truss rod extending from end to end. The axle runs on four sets of flexible roller bearings. Thrust is entirely eliminated, friction is greatly reduced, and it is absolutely noiseless.

The Haynes is the **highest powered shaft-driven car built**. In requesting catalog, for prompt attention address desk D33.

We shall exhibit only at the Seventh National Automobile Show, Madison Square Garden, January 12-19, 1907.

HAYNES AUTOMOBILE CO.
Kokomo, Indiana.
CHICAGO: 1420 Michigan Ave.
NEW YORK: 1715 Broadway.
Members A. L. A. M.



"The Car the Repairman seldom sees."

Model "R" Four-Cylinder Touring Car.

Vertical roller-bearing engines. Cylinders cast separately, 5¼x6-inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller-bearings throughout. 108-inch wheel base, 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, $3,500 f. o. b. Kokomo. Full equipment.

Model "O" Four-Cylinder Touring Car

Cylinders cast in pairs 4¼x5-in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller-bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, $2,250 f. o. b. Kokomo. Full equipment.

The GOODYEAR Detachable AUTO-TIRE ON Universal Rim



Removes that ever-present terror of Punctures. You or anyone can remove a tire and put it back in 60 seconds by the watch

No Tools but the Hands

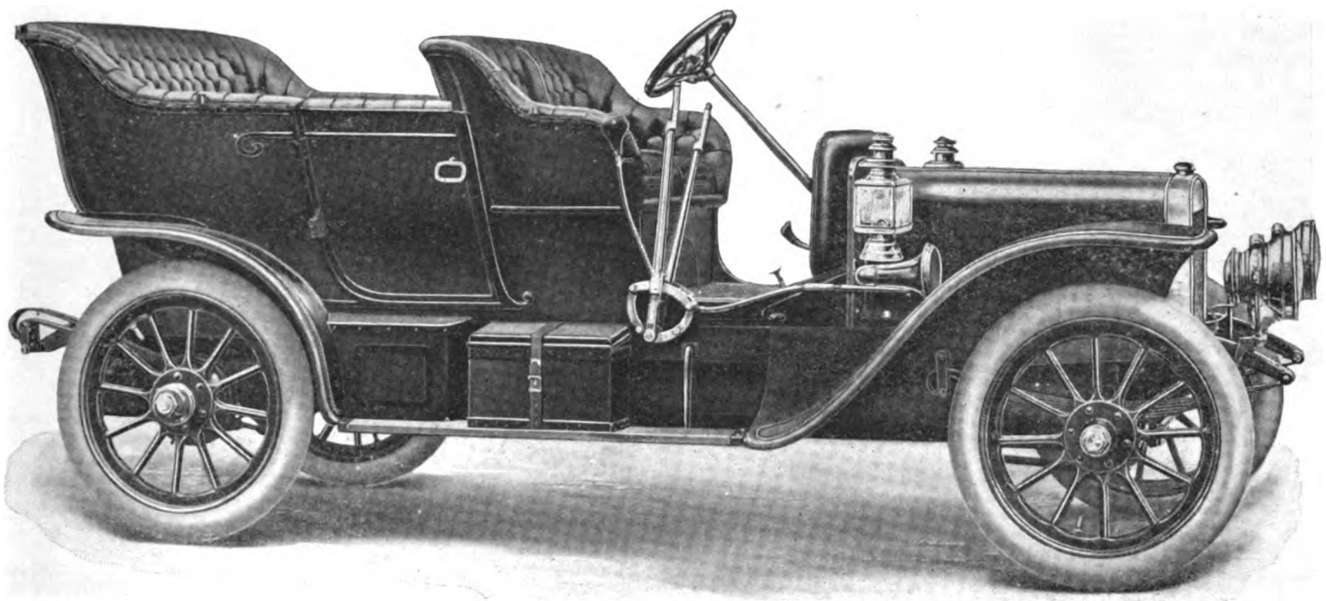
Come to the Factory or spend a few minutes at any of the following Branch Stores, and see how easy it is done by doing it yourself

Boston, 261 Dartmouth St,
New York, cor. Sixty-fourth St. and Broadway.
Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co., 377 10th St.
Buffalo, 719 Main St.
Denver, 220 Sixteenth St.
Detroit, 242 Jefferson Ave.

The Goodyear Tire and Rubber Co., Grove Street, Akron, O.

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WINTON



The Winton Model M Clutch and Transmission are the Engineering Achievement of the Year

SELECTIVE TPYE TRANSMISSION, giving FOUR forward speeds with direct drive on the THIRD speed. On direct drive ALL counter-shaft gears are AT REST.

Interlocking device permits coming into the neutral WITHOUT DISENGAGING THE CLUTCH, and prevents engaging any new gear combination while clutch is engaged. Proof against mistake.

Selective mechanism completely housed, providing cleanliness and lubrication.

MULTIPLE DISC CLUTCH has 49 steel friction surfaces; 24 keyed to transmission shaft; 25 attached to driving spiders.

Owing to its numerous members and the oil film between them, this clutch will take the fourth speed from standstill absolutely without shock or jar.

Six springs, placed at equal distances around the clutch, distribute the tension equally on the discs.

Seven annular ball bearings in the clutch and transmission, providing remarkable freedom from friction.

Clutch and transmission are completely housed in a single, exceptionally compact case, and run constantly in an oil bath.

These are REAL improvements in automobile construction; not simply changes. They merit investigation. Incidentally you will find that the Winton Model M more nearly approaches the ideal automobile than any other car you have ever seen.

Book 7 gives the details of this $3,500 seven passenger car.

Book 8 describes the $2500 Winton Type X-I-V, a five passenger car, having individual clutch transmission.

THE WINTON MOTOR CARRIAGE CO., Cleveland, O., U. S. A.

Member Association of Licensed Automobile Manufacturers.

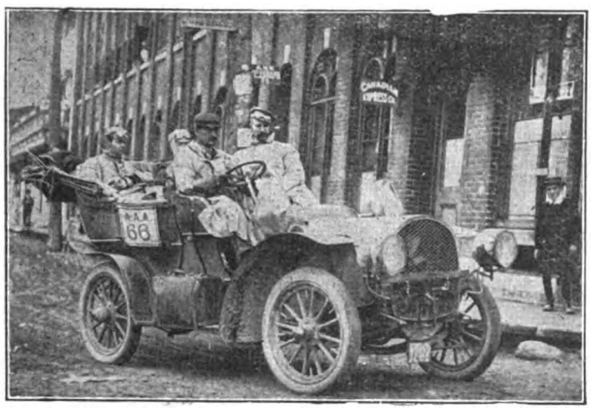
Branches in NEW YORK, BOSTON, PHILADELPHIA, PITTSBURGH, CHICAGO and LONDON.

We shall exhibit only at the 7th National Automobile Show at Madison Square Garden, New York, January 12-19, 1907.

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THE MARMON

"A Mechanical Masterpiece"



Perfect Score—Glidden Tour.

A Typical Remark In the Glidden Tour

"Great Scott, man! If you want to drive like that over such a road, all right; but I'd rather save my car."

There you have it!

He was driving the usual type of car.

And he didn't understand that the Marmon man (who finished with a perfect score) was driving a car that eats up a rough road without risk.

If you intend to drive your car over country roads, investigate the Marmon's feature of flexible running gear.

This feature saves power, tires, and passengers.

The easiest riding car in the world.

Marmon air-cooling (cylinders individually cooled) proved itself not only the equal, but the superior, of water-cooling, in the Glidden Tour.

FOR THE LIVE AGENT

We have a 1907 proposition that means business, and lots of it. How about your territory? Write us.

Nordyke & Marmon Co.

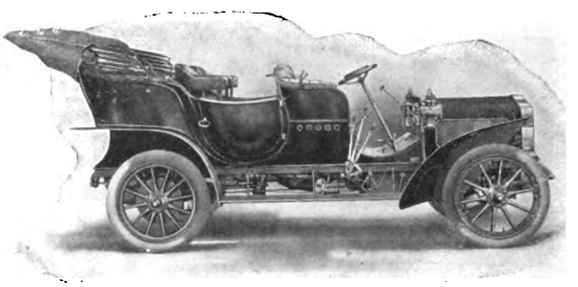
(Established 1851) **Indianapolis, Ind.**

Members American Motor Car Manufacturers' Association.

The Incomparable

WHITE

The Car for Service



MORE HONORS FOR THE WHITE

In the arduous 115-mile Reliability Test of the Lugano-Unione Sportiva, held August 19th, over the celebrated St. Gothard Pass, a White made a perfect score and was awarded a gold medal.

In the Los Angeles Endurance run, June 29th-30th, three Whites made perfect scores. No other make which was represented by more than one car escaped penalization.

More significant still, as demonstrating not only the reliability but also the simplicity of operating the car, was the perfect score made by Mrs. F. B. Draper, driving her White Steamer, in the recent Chicago-Elgin-Aurora Endurance run.

Write for circular descriptive of our new models

WHITE SEWING MACHINE COMPANY

CLEVELAND, OHIO

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The Confidence of the Public

is a priceless asset. The man, or the firm, that effects to disregard public opinion will bear watching. We are frank to say we'd risk the last dollar in the Till, rather than risk the loss of our customers' confidence, or those who may later be our customers.

Now There's That Four-Cylinder

runabout. No, we're not going to tell you of its wonderful qualities; the car speaks for itself, and we're still thousands behind our orders.

We Were Accused of Bad Faith

in announcing a car of such power, such quality, at such a price. We felt badly over those charges; they hurt because we had never done anything to deserve them. Of course we are not worrying about the effect this move might have on the "Automobile Industry." We do know it will **make this Ford Motor Company the largest in the world;** and, begging pardon, that's our objective point.

But We've Made Good.

We are getting them out as fast as men and machinery can do it, better cars than our most sanguine customers hoped. Every buyer, every agent, can't be first of course; and some are mighty impatient. But they no longer doubt our good faith; and we don't have to apologize for quality,—the delay in deliveries, that is all.

Next Model We Announce,

take our word at par, we will stand back of it to the last dollar.

THAT MODEL "K", the FORD "6-40", is the best touring car on earth—our word for that too. 6 Cylinders; magneto and storage battery Ignition—two sets complete and separate; 40 H. P., silent as an Electric, speedy as a Racer. A $4,000 car, we will make more of them than all the rest combined—create a demand for our immense output by the price, $2,500

FORD MOTOR CO., Detroit, Mich.

Members American Motor Car Manufacturers' Association, Chicago

BRANCHES:

147-149-151-153 Columbus Ave., BOSTON. 1721-23 Broadway, NEW YORK.
727 Main Street, BUFFALO. Broad and Buttonwood Sts., PHILADELPHIA.
1444 Michigan Ave., CHICAGO. 1913 S. E. Euclid Ave., CLEVELAND.
318-320 E. Eleventh St., KANSAS CITY.

Canadian Trade Supplied by FORD MOTOR COMPANY OF CANADA, Ltd., Walkerville, Ontario.

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TRANSLATED FROM THE FRENCH

REGARDING THE CIRCUIT OF ARDENNES

AUGUST 13, 1906

Contribution to the Study of Sporting Publicity at the beginning of the 20th Century

Nobody is obliged to win a race.
But for him who does not win...
Silence is golden.

After such a complete victory as the one we have just won, the hour of recrimination has not struck for us; and to recriminate is not our intention.

But it seems to us that the results of the Ardennes Circuit being still in everyone's mind, the moment is peculiarly favorable to compare them with those of the Sarthe Circuit, and to draw from such comparison the lessons which it brings with it.

The appearance of removable rims in the Sarthe Circuit has created a great sensation. And it must be admitted that, if the great majority has praised our initiative, there were found people who contended that this appearance has falsified the results of the test, in consequence of the inferior position in which necessarily were placed the cars equipped with ordinary rims. Some competitors have, of course, exaggerated this opinion—more severe than just—of certain technical men and this theme has supplied them with materials for developments most varied.

In fact by advertisements of too strong tendency and wilfully clever, they tried to make the public believe that they were the true winners of the race. One might have read in the Sporting dailies as well as in the reviews or Society papers, in France or abroad, advertisements in which the science of typographical combinations vied with the malice of intention. It is even very curious to study closely such documents which will never serve to write a sincere and true history of a test, but will be able to give, to those who will come across them in the future, a poor opinion of the mentality of the advertisers of our times. We shall place some of those advertisements before you after having reminded you of the official results.

1. SZISZ, Renault car, MICHELIN tires.
2. NAZZARO, F. I. A. T. car, MICHELIN tires.
3. ALBERT CLEMENT, Bayard-Clement car, X tires.
4. BARILLIER, Brasier car, Y tires.
5. LANCIA, F. I. A. T. car, MICHELIN tires.
6. HEATH, Panhard car, MICHELIN tires.
7. BARAS, Brasier car, Y tires.
8. DURAY, Lorraine-Dietrich car, MICHELIN tires.

Thus five out of the first eight on Michelin tires, and out of these, the first two.

We have not advertised anything else.

However, after the numerous claims which have appeared on this occasion, it follows—or almost follows—that only Michelin has not won the race.

And here is the trick to which recourse has been had.

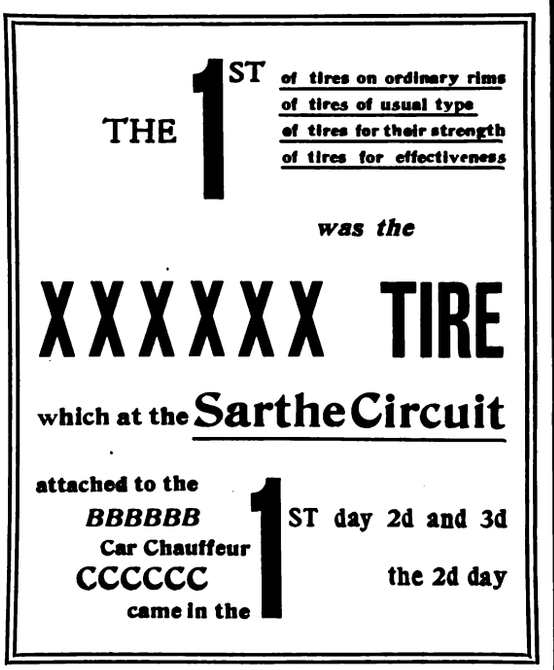


Fig. 1

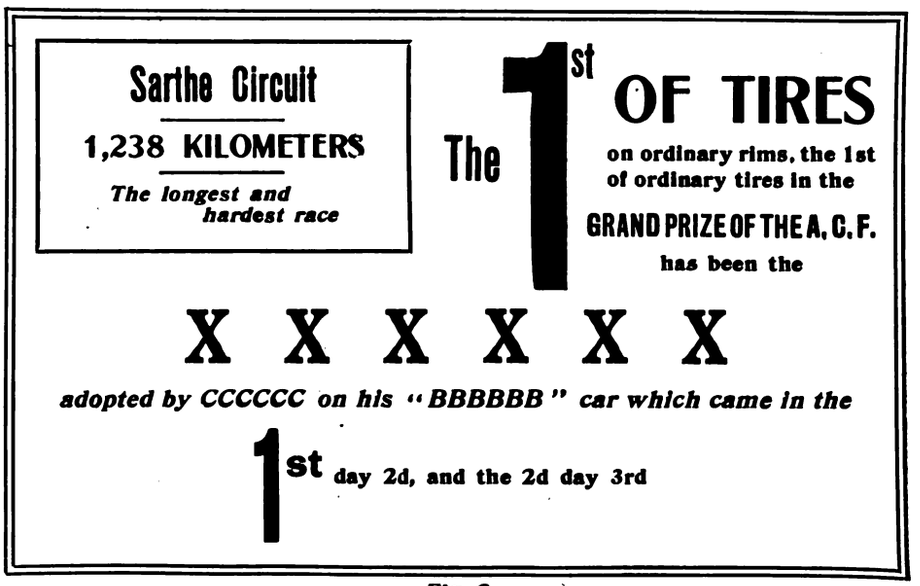


Fig. 2

Let us, for instance, take this sentence:

"The first of the tires on ordinary rims was the XXXXXX tire, which at the Sarthe Circuit came in second on the first day and third on the second day."

This is not very malicious, is it?

Read the same sentence again, differently set, and of which Fig. 1 shows a specimen which apepared in an important review.

And so from hasty reading one is led to believe that "The first was the XXXXXX tire which at the Sarthe Circuit came in first," which was intended that you should read.

See again Fig. 2, a different reading which appeared in a Sporting daily, and which is not less suggestive.

Notice that it is not more difficult to have all the "firsts"; the price for printing this was not higher.

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Read also Fig. 3 the advertisement which appeared in a German paper, and the accompanying translation. By a skillful mixture of the days, rims and the final classification, these different and advantageous results are arrived at for the same race of the same competitor.

This, in plain French, is called the art of making use of the leavings (l'art d'accommoder les restes.)

So far as we are concerned it is not by a skillful and clever advertisement that we expect to win our races, but on the road; and for this we trust only in the excellence of our products.

Whatever may be the case, and although it is admitted without contest even by our opponents that our air tubes are doubtless superior to anything on the market, our competitors, pleading the removable rims, could say after the Sarthe Circuit:

"Our tires are better than Michelin tires, and if it had not been for the removable rims, we should have won the race." But if the fact of our having introduced the removable rims in the Sarthe Circuit had been able to handicap our competitors, very soon afterwards another test, the Ardennes Circuit, made the odds even. In this race all the competitors had removable rims, except Wagner, Demogeot and Hemery, who besides, might have had them. Thus the equilibrium was re-established. Now what happened? As only the quality of the tires was at issue the Michelin succeeded in winning the first five places, and to have six winners among the first seven.

Here are the official results:

1. DURAY, Lorraine-Dietrich car, MICHELIN tires.
2. HANRIOT, Darracq car, MICHELIN tires.
3. ROUGIER, Lorraine-Dietrich car, MICHELIN tires.
4. BARILLIER, Brasier car, MICHELIN tires.
5. GABRIEL, Lorraine-Dietrich car, MICHELIN tires.
6. ALBERT CLEMENT, Bayard car, MICHELIN tires.
7. SOREL, Lorraine-Dietrich car, MICHELIN tires.

What is now to be thought of the interested protests which greeted the results of the Sarthe Circuit, if not that the latent justice of things has of itself reduced to their proper value the lamentations which the spite of the defeat has caused our adversaries to indulge in? And especially what is to be thought of an advertisement still more extraordinary than all the others which appeared on the very day after the race in an important Sporting daily and in which a tire maker always by the means of the same typographical trickery advertises, in glaring headline, that he has had in the Ardennes Circuit the first tire . . . . in the world? Of course "Ardennes Circuit," "First" and "XXXXXX tire" still occupy nearly the whole space of the advertisement, the "world" being for the needs of the case reduced to its smallest size.

When Michelin says that he is the first it is because he has in fact obtained the first place. He does not claim to have the first tire in the world, he simply says that his tire came in first in such and such a special race.

We think that the question is not to know whether one is the first in France, abroad, or in the world, especially when such a certificate emanates from onesself, because this proves nothing, but the question is whether such and such a race has been won by us or not, which is infinitely more conclusive.

MORGENBLATT DER FRANKFURTER ZEITUNG

Schlussfolgerung aus dem klassischen Rennen

Grand Prix, 1906

Erster

auf nicht abnehmbarer Felge CCCCCC

Zweiter

am ersten Tage des Rennens CCCCCC

Dritter

CCCCCC im Endresultat

auf

X X X X X X

MORGENBLATT DER FRANKFURTER ZEITUNG

Results of the Classical Race

Grand Prize, 1906

First

on unremovable rims CCCCCC

Second

on the first day of the race CCCCCC

Third

CCCCCCC of the final heats

on

X X X X X X

Fig. 3

We are quite sure that the public is far too clear sighted at present to be deceived on the results of a race, by a would-be skillful advertisement. But is has not seemed less interesting to us to point out this fact, especially as in the Ardennes Circuit, we repeat the odds were even for all, and that removable rims were placed at the disposal of all the racers who wanted to make use of them.

MICHELIN & CO.

It has been said—"Michelin has won the Grand Prize of the Automobile Club of France owing to his removable rims. (This, moreover, would not have been so stupid to have found the right thing at the right moment.)

But here are the results of the Ardennes Circuit:

1. Duray, Lorraine-Dietrich.....**MICHELIN TIRES AND REMOVABLE RIMS**
2. Hanriot, Darracq.....**MICHELIN TIRES AND REMOVABLE RIMS**
3. Rougier, Lorraine-Dietrich.....**MICHELIN TIRES AND REMOVABLE RIMS**
4. Barrillier, Brasier.....**MICHELIN TIRES AND REMOVABLE RIMS**
5. Gabriel, Lorraine-Dietrich.....**MICHELIN TIRES AND REMOVABLE RIMS**
6. A. Clement, Bayard-Clement.....**X Tires and Removable Rims**
7. Sorel, Lorraine-Dietrich.....**MICHELIN TIRES AND REMOVABLE RIMS**
8. Wagner, Darracq.....**Y Tires and Ordinary Rims**
9. Salzer, Mercedes.....**Y Tires and Ordinary Rims**
10. Jenatzy, Mercedes.....**Z Tires and Removable Rims**
11. Villemain, Bayard-Clement.....**X Tires and Removable Rims**
12. Garcet, Bayard-Clement.....**X Tires and Removable Rims**

Is it, this time, the rim or the Michelin tire which has five times beaten its competitors?

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LOZIER

1907 AGENCIES

¶ We are now closing Agency contracts for 1907 LOZIER MOTOR CARS, and there is still a chance for a few live agents in some of the larger cities.

¶ The retail demand in New York City and vicinity, for LOZIER MOTOR CARS is so large that only a limited number of cars can be furnished to agencies, and it is therefore advisable that those desiring to represent this high-grade product in their locality should communicate with us at once, as territory will be assigned to responsible first comers.

¶ The agencies which we will establish will have cars allotted to them, and assurance will be given that deliveries will be satisfactory, as the number of LOZIER agents will be limited.

¶ Deliveries will begin in October.

¶ 40 and 60 Horsepower.

1907 AGENTS

Geyler & Levy, Chicago.
Myronda Motor Car Co., St. Louis.
Sid Black Auto Co., Cincinnati.
White & Castle, Springfield, Mass.

THE LOZIER MOTOR COMPANY
Member Association Licensed Automobile Manufacturers.
55TH STREET AND BROADWAY, NEW YORK CITY
We shall exhibit only at the Seventh National Automobile Show at Madison Square Garden, New York City, January 12-19, 1907.

Two Punctures

Between San Francisco and New York



represents the sum total of tire troubles in the remarkable transcontinental record run of a Franklin car equipped with

GOODRICH TIRES

A new cross-country speed record (3,500 miles in 15 days) and another practical demonstration of Goodrich Tire superiority following close upon the Glidden Tour accomplishment where 66⅔% of the clean score cars were equipped with **GOODRICH AUTOMOBILE TIRES.**

THE B. F. GOODRICH COMPANY,
AKRON, OHIO

New York, 66-68 Reade St. & Broadway. Chicago, 24 E. Lake St.
Oakland, Fourth and Washington Sts. Boston, 161 Columbus Ave.
Philadelphia, 909 Arch St. Buffalo, 731 Main St.
Detroit, 266 Jefferson Ave. Denver, 1444 Curtis St.
Cleveland, 2188 Ninth St., S. E. St. Louis, 3926-28 Olive St.
London, E. C., 7 Snow Hill.

GOODRICH TIRES

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The G & J Oval Raised Tread Tire

The Tire Without An Equal

FOR RACING
FOR LONG, HARD DRIVES
FOR EVERYDAY USE

Built on a plan that insures

HIGHEST SPEED GREATEST DURABILITY
LEAST LIABILITY NO TIRE TROUBLES

The flap makes pinched tubes impossible.

The manner in which the tire constricts to the rim positively prevents creeping.

The absence of lugs makes it the easiest tire in the world to handle.

Ask for our printed matter giving full particulars.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

G & J TIRE CO.
Indianapolis.

Depots:

Chicago	**Boston**	**Cleveland**
Detroit	**Buffalo**	**Denver**
	Philadelphia	

San Francisco, 423-433 Golden Gate Avenue
New York, 10 West 60th Street

Distributing Agencies:

Minneapolis, Plant Bros.
Portland, Ore., Keats & Co.
Los Angeles
Ramsay-Hutchins Rubber Co.,

NO BETTER PROOF OF HIGH STANDING

is needed than the fact of the selection by the Vanderbilt Cup Race Committee of the

CORBIN

as its official car.

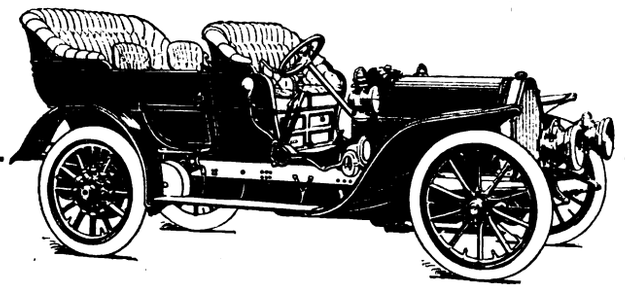
Backed by ample capital, over fifty years' knowledge of high-class manufacturing, the experience of a vast engineering corps and a policy which demands that everything be done right

Corbin Motor Vehicle Corporation

NEW BRITAIN, CONN.

N. Y. Branch, 1799 Broadway, New York.
E. T. Kimball Co., Motor Mart, Boston.
Bennett-Bird Co., 1470 Michigan Ave., Chicago.
J. W. Leavitt & Co.,
415 Golden Gate Ave., San Francisco.

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1907 POPE-TOLEDO

TYPE XV.—50 H. P.

Price, $4250

(With Cape Top, $200.00 Extra.)

The latest problem in Automobiledom is to construct a high-powered, reliable touring car within reasonable limits of wheel base and weight so as to give maximum comfort and the greatest efficiency combined with minimum expense in repairs and up-keep.

This has been accomplished in the **1907 POPE-TOLEDO,** which is a trim, compact, modern machine, smooth running, of the highest efficiency and absolutely dependable. It is the product of years of experience in manufacturing mechanical vehicles. Its materials are the best that money can purchase, including a liberal use of Chrome-Nickel Steel throughout the entire structure. Its design is artistic, embodying the latest and most improved ideas. Its arrangement has been carefully studied to the end that comfort be given all who ride in the car. Its weight is within the limit that helps to insure a long useful life to the engine and every other part of the machine.

REMEMBER, FOUR SPEEDS FORWARD AND REVERSE. No man buying a 1907 high-powered, seven-seated touring car should demand less than four speeds forward.

Detailed information on application.

We exhibit only at Madison Square Garden, January 12-19.

Pope Motor Car Co.

TOLEDO, OHIO

POPE Toledo AUTOMOBILES

New York: 1733 Broadway.
Boston: 223 Columbus Ave.
Washington, D. C.: 819 14th St., N. W.

Member Association of Licensed Automobile Manufacturers.

POPE Toledo AUTOMOBILES

Columbia Automobiles

1907 GASOLENE ELECTRIC 1907

Will maintain the high standard of excellence attained in the past.

An improvement made in all models where experience has demonstrated its value tends to make the COLUMBIA better than ever before.

Electric Vehicle Company

HARTFORD, CONN.

NEW YORK BRANCH—134-136-138 West 39th St.
CHICAGO BRANCH—1332-1334 Michigan Ave.
BOSTON—Columbia Motor Vehicle Co., 74 Stanhope St.
WASHINGTON—Washington R. V. Transportation Co., 15th & Ohio Ave.
Members Association of Licensed Automobile Manufacturers.

SOLARS

SHOW THE WAY

The **Solar Parabolens Projector** will please the motorist who wants to see where he is going.

There is light and plenty of it that pierces the distant obstruction and at the same time lightens up the ground right in front of the car.

Our Bi-Concentric lens is what does the trick.

BADGER BRASS MFG. CO.

11th Ave., 36th to 37th Sts., New York City

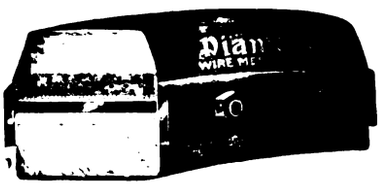
KENOSHA, WIS.

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"ON RAILS OF RUBBER"

That's where the Motor Truck must run to be a success.

Diamond
Wire Mesh Base Tires



for Motor Trucks and Commercial Cars, are the only practical Rubber Rails.

The weaknessess of ordinary truck tires have been avoided in Diamond Wire Mesh Base Construction.

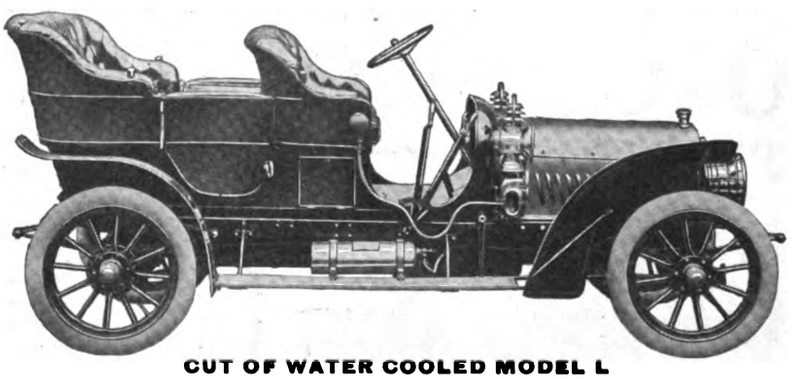
Note the cut. See the low, broad tread, giving enormous traction (the right ground grip) and avoiding leverage for side strains.

Simple—Economical—Scientific, and made of high-grade rubber. *Let us send you a catalogue.*

THE DIAMOND RUBBER COMPANY, Akron, Ohio.

NEW YORK—78 Reade St.
NEW YORK—1717 Broadway.
BOSTON—174 Columbus Ave.
PHILADELPHIA—304-306 N. Broad St.
BUFFALO—715 Main St.
DETROIT—258 Jefferson Ave.
ST. LOUIS—3966 Olive St.
CHICAGO—1523-31 Michigan Ave.
CLEVELAND—1514 Euclid Ave.
OAKLAND—108-110-112 Telegraph Ave.
MINNEAPOLIS—503 Second Ave., S.
DENVER—1735 Arapahoe St.

NEW PREMIER MODELS



CUT OF WATER COOLED MODEL L

This Company is now prepared to deliver a limited number of 1907 Premier cars.

They are handsome in appearance, attractive in design, have ample power, so well delivered to the rear wheels as to take the car and its load of five people over roads—hilly, muddy or sandy—which an automobile is supposed to travel.

No car built is so comfortable a carrier.

Its construction is superb—the product of a factory devoting its energies to only such designs as are within its province—**made** in this factory by the best engineering and mechanical talent avaiable.

24 M. P—shaft drive—selective type sliding gear transmission—large wheels and tires—economical of fuel and repairs—**very** easy to operate.



Air Cooled

All of these salient points should appeal to the prospective purchaser of a motor car.

Go to our nearest agent and look the car over thoroughly—ride in it—compare it with any car offered at the price. Premiers have a way of convincing you of their great superiority.

SEND FOR CATALOGUE S.

PREMIER MOTOR MFG. COMPANY, Indianapolis, Ind., U. S. A.

Members American Motor Car Manufacturers' Association.



Water Cooled

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Just a straw that shows which way the wind is blowing.

C————, T——., Aug. 24, 1906.

CADILLAC MOTOR CAR CO., Detroit, Mich.

Gentlemen—As per yours of the 9th inst. to ——— & ——— Co., we hereby make application for the Cadillac Agency as successors to the automobile business of the ———— Company.

We note the contents of your letter and can assure you that it will be our policy to push the single cylinder Cadillac as our leader, and judging from the present conditions of the automobile business in this city, we feel that we will be in a position to more than double the Cadillac business, as it is now much the most popular car, and the public have awakened to the fact that while the Cadillac may only have one cylinder, it is still doing business when the ————, the ————, the ————, the ——— and other two-cylinder cars that the agents make great claims for, are laid on the shelf and most of them entirely out of business in less than six months' time, whereas it is an actual fact that the first Cadillac we sold here (in 1903) as well as the last and all of those between, are in actual every day use and are taken care of and driven by their owners and not hired chauffeurs.

We ask that you give us prompt assurance that we can take up the local Cadillac Agency on the expiration of ——— & ———— contract, September 1st, 1906, and please remember that the writer is taking an active interest in the new company.

Yours truly,

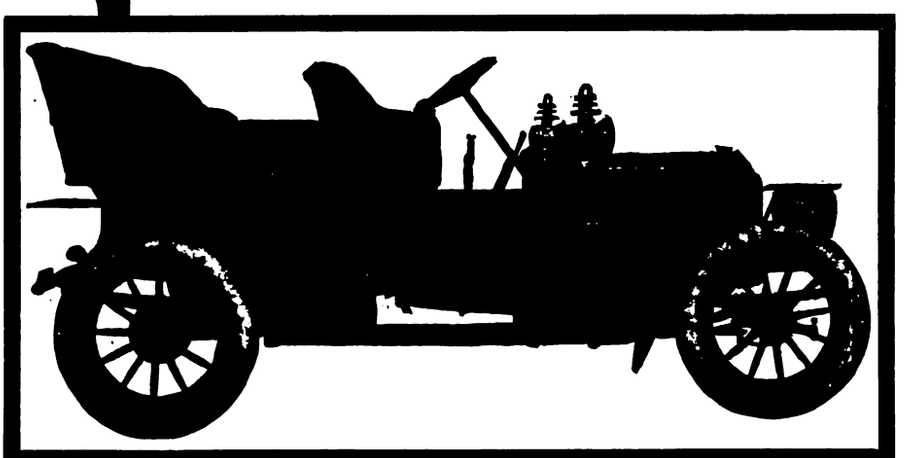
G———— AUTOMOBILE CO.

Dict.

Names are omitted for obvious reasons, but name of the writer may be obtained on request.

Cadillac Motor Car Co.

A Quotation from Collier's About the TWO-CYCLE ELMORE



Some things printed in Collier's Weekly the other day about the Two-Cycle Elmore are worth repeating. There's meat in them.

It's in our language—but it's true, every word of it.

In this announcement we said:

"We believe that the two-cycle engine is the most potent force and the most vital principle in automobile construction to-day.

"We believe that no man can make the issue plain between two-cycle and four-cycle without being **forced** to this conclusion.

"We contend that the two-cycle principle of **constant torque** or **continuous power** is absolutely vital to the highest possible development of the automobile.

"We want you to know that the two-cycle Elmore has proven this over and over and over again—that the last and greatest proof was the Glidden Tour.

These statements are not mere "sounding brass and tinkling symbals." Back of them is the evidence. Part of it is contained in several books you owe it to yourself to read.

One is called "Busy Little Two-Hundredth of a Second." Another is called "One Long Jump and Two Short Steps." A third clearly explains the two-cycle principle. Write for them at once.

THE ELMORE MANUFACTURING COMPANY, Members A. L. A. M. **1104 Amanda St., Clyde, Ohio**

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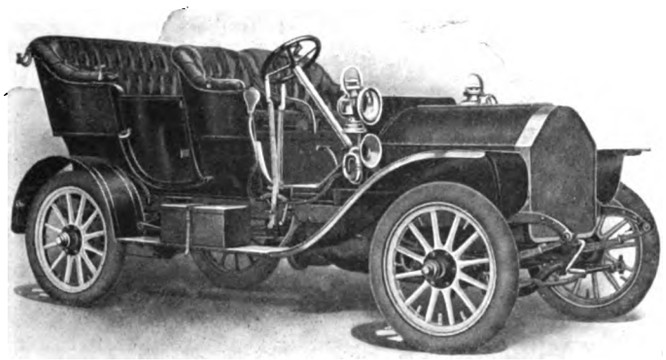
"The direct system of cooling shown by the Glidden Tour to be the most efficient in existence, direct or indirect."

Model "H"
KNOX
WATERLESS
25-30 H. P.
$2500

OUR 1907 CREATION, THE

Model "H" Knox Waterless

is shown for the first time. It embodies more points of merit and contains more high grade material and workmanship than any other car at its price. Months of thorough testing have failed to reveal a weakness, and we offer it confident of its ability to serve all the purposes of a touring car under any conditions. Advance pamphlet and details are ready for mailing. SPECIFICATIONS:—Horse-Power, 25-30; four cylinders, 4⅜ in. x 4¾ in.; 32-in. x 4-in. tires; wheel base 102 inches; selective sliding gear transmission, three speeds forward and reverse; shaft drive, with ball and rolier bearings; chrome nickel steel drive gears; capacity, five persons; speed, 45 miles an hour; weight, 2,250 pounds, *actual;* color, Napier green or Mercedes red, with red leather upholstering, all of Knox quality.



Knox Automobile Company
Member Association of Licensed Automobile Manufacturers.
SPRINGFIELD, MASS.

MICHELIN

The great racers of the world trust their lives and fortunes to Michelin Tires and Michelin Quality. You ought to be willing to, too.

To get Michelin Quality without fault or blemish, buy your tires from the only authorized representative in America.

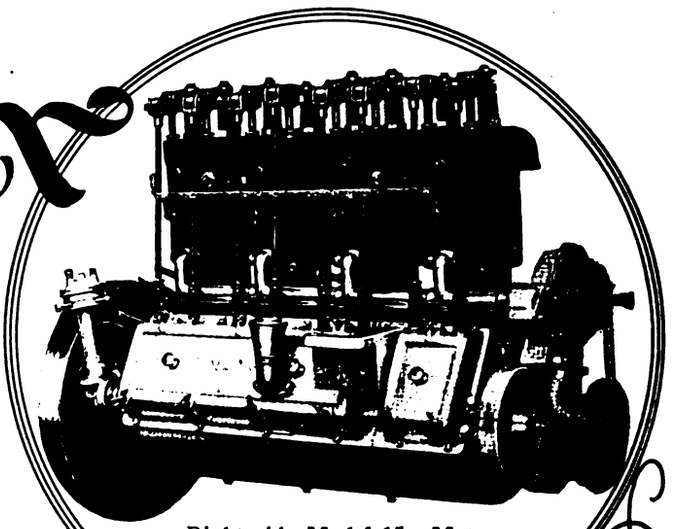
MICHELIN PRODUCTS SELLING COMPANY

E. D. WINANS, Manager
31-33 WEST 31st STREET, NEW YORK CITY
SOLE AMERICAN REPRESENTATIVE OF MICHELIN et CIE, CLERMONT-FERRAND, FRANCE

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Rambler

THE CAR THAT IS RIGHT



Right side Model 15. Motor showing valve mechanism.

Motor power is commonly rated by calculations based on cylinder capacity, gauge tests, etc.

Through faulty design, poor valve action and overheating, the actual power often falls far below this rating.

The Rambler motors are fitted with over-head valves of ample size and opening. This results in quick clearance of exhaust gas, which assures a full charge of fresh vapor and a cool engine.

The workmanship is of the same high class that has characterized all Rambler Models.

Model 15, the leader of the 1906 line, is a powerful touring car, with 35-40 horse power motor, and every modern feature in power, plant and equipment.

Full details of this and five other models in the second edition of our 1906 catalogue, which is at your service.

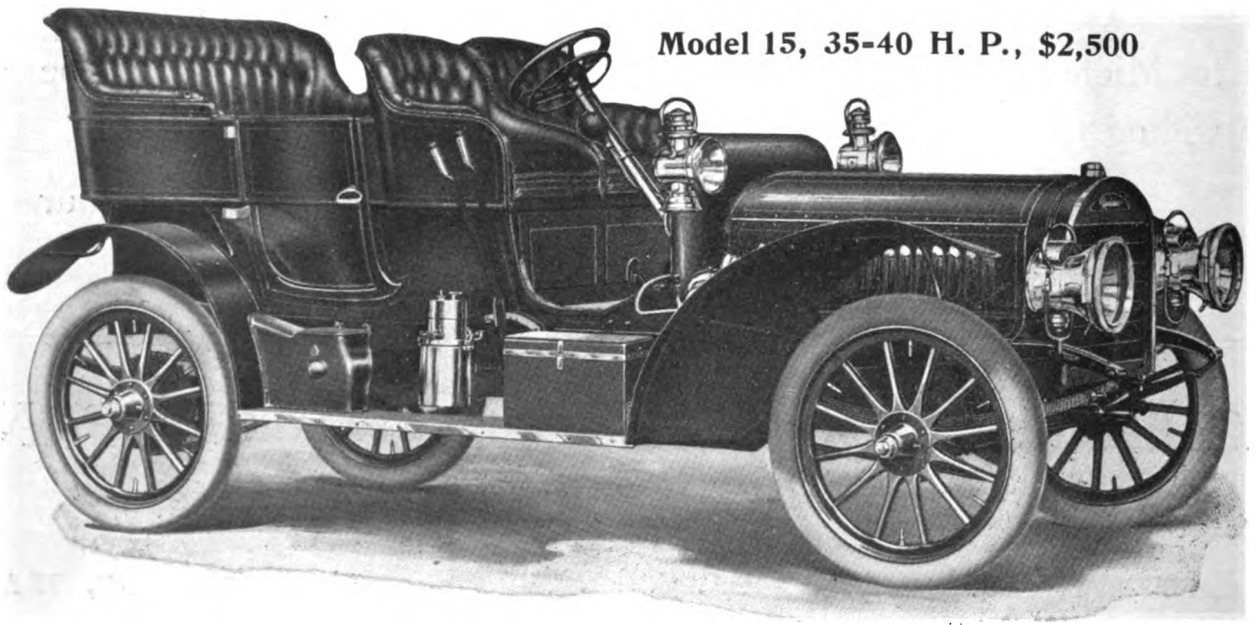
Main Office and Factory, Kenosha, Wisconsin

BRANCHES:

Chicago, Milwaukee, Boston, Philadelphia, San Francisco.

New York Agency: 38-40 West 62d Street. Representatives in all leading cities.

Thomas B. Jeffery & Company



Model 15, 35-40 H. P., $2,500

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THE MOTOR WORLD

A WEEKLY JOURNAL DEVOTED TO THE AUTOMOBILE AND KINDRED INTERESTS

Volume XIII. New York, U. S. A., Thursday, September 27, 1906. No. 17

OWEN TAKES ON PREMIERS

Obtains Eastern Half of Country—Transaction in Nature of Big Surprise.

It transpires that the recent formation of the R. M. Owen Co., New York, had for its object more than the sale of the output of the Reo factory.

The fact that Mr. Owen had been closely identified with the Reo interests since the inception of that car, made it appear improbable that he would have to do with any other automobile, which, however, is exactly what has come about. The R. M. Owen Co. has been appointed Eastern sales agents for the Premier, which means, of course, that they will handle that Indiana-made car, not only in New York, but in a large and lucrative part of the country.

The transaction does not mean, however, that the Owen interest in Reos is lessened in the slightest degree, as such is not the case. The two cars will be handled in conjunction, the Premier being largely in the nature of adding a four-cylinder string to the Owen bow, which string has been lacking.

Midgley Resigns a Presidency.

On Saturday last, Thomas Midgley, president of the Midgley Manufacturing Company, Columbus, Ohio, tendered his resignation as president, to take effect at once. Since March, 1905, Mr. Midgley has been connected with the Hartford Rubber Works Co., Hartford, Conn., and was recently elected president of that company upon the resignation of Mr. Dale.

The only reason given for Mr. Midgley's action is that his entire time is taken up with his duties at the Hartford Co. Mr. Midgley leaves the Midgley Co. with affairs in such shape that they can be easily handled by his successor, who has not as yet been named.

Babcock Erecting Big Building.

The Babcock Electric Carriage Co., Buffalo, N. Y., has commenced work on a big addition to its plant—a two-story brick and concrete structure, 300x50 feet. The site on which it is being erected is large enough to permit of more buildings of the same proportions being put up—a by no means improbable contingency. The Babcock Co. has also formed their retail business into a separate concern to be known as the Buffalo Automobile Station Co., the Babcock interests, however, remaining in full control.

Morgan & Wright are Moving.

Morgan & Wright are now engaged in removing from Chicago to their new home in Detroit; they will be settled in the latter place by October 1st and thereafter, of course, Detroit will be their address. The new plant in the Michigan metropolis, of which they are taking possession, was built and equipped specially for their needs and it goes almost without the saying that it is about the most modern rubber mill in the universe. It covers an area of seven acres, the main building being of four stories, 300x60 feet, the equipment being in keeping with the splendid structure itself.

Five New Members on the Roll.

These new members just have been added to the role of the American Motor Car Manufacturers' Association: Rapid Motor Vehicle Co., Pontaic, Mich.; American Motor Car Co., Indianapolis; Dragon Automobile Co., Detroit; Mora Motor Car Co., Rochester, N. Y.; American Machine Manufacturing Co., Detroit. These accessions bring up the association's strength to 31 members.

Dates Set for Boston Show.

The Boston Automobile Dealers' Association, Inc., will hold their 1907 show in March, as usual, March 9-16 being the exact dates that just have been selected. The show will be housed in both the Mechanics' Building and Horticultural Hall, Boston, and Chester I. Campbell again will be its manager, a fact which goes almost without the saying.

FROST FALLS IN CHICAGO

Promoter Calls it a "Parts Show"—Only One Fur Coat in Prospect.

Chicago, Sept. 25.—It is necessary to control one's facial features in saying it, but truly, America's first exclusive parts show is now holding the boards in the First Regiment Armory, in this city. The promoter grandiloquently styles it "The First Annual Automobile Parts, Appliances and Accessories Exhibition," but if the trade and the motoring public are unaware of the existence of the show, they well may be pardoned. Even here in Chicago there are very many who are in ignorance of the fact. The few who have taken the trouble to visit the armory have invariably departed with broad grins on their countenances. Although Promoter Andrews takes himself and the affair rather seriously, he must be rather lonesome in doing so.

Frost, invisible, but at least a foot deep, is spread all over; there is no crowding or jostling, there is elbow room and plenty of it in all directions. Several oddities are in evidence but the wonder is that so many exhibitors, even of oddities, were so easily attracted. As a matter of fact, anyone in the East who desires to see a far more representative show, needs but to drop into such a supply house as, say, that of Charles E. Miller, on Reade street, New York City. In variety and in merit, Miller's display more than double-discounts this so-called exhibition of parts, appliances and so forth. About the only purpose the affair is likely to serve will be to provide some Chicago chauffeur with a new winter overcoat.

On the first night, Saturday, on account of the large number of free tickets distributed, the attendance was fair, but less than half the exhibits were installed; since then some of the stands have been filled, with some new comers but the daily crowds have dwindled to a corporal's guard, and, judging from some of the remarks, but few know the difference between a spark

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plug and a rear axle, and this class was not the crowd the management promised would fill the aisles. There is an entire absence of "automobile atmosphere"; no prominent trades people are to be met, while the exhibitors are composed, with but few exceptions, of new people in the business, who, not being familiar with conditions, paid money to go into a show that will avail them but little. The general expression seems to be one of disappointment and regret that they helped to make such a show possible. The whole affair looks cheap; practically no effort at decorations was made; the signs over each booth are dingy in the extreme, but the seemingly inevitable Chicago side show is present, this time in the form of an exhibition of moving pictures of racing scenes, which apparently is the main attraction. There is also going on a voting contest for the "most popular chauffeur"; his reward will be a fur overcoat. But none of these attractions are strong enough to thaw the frost or to dispel the dismal gloom. The first-class papers here gave it no space whatever while a few of the obscure sheets printed a few of its press notices that were handed out, so the show did not even arouse local interest. Although the promoter professes to be greatly pleased, it hardly seems probable when he strikes a balance at the end of the week, that he will have cause to crack his heels for joy.

To those familiar with the Armory building, it suffices to say that only part of the main floor is utilized for the exhibits; the remainder is occupied by the screened off moving picture show. The entire list of exhibitors is: Pantasote Leather Co., Tuthill Spring Co., L. J. Mutty, Harburg Tire Co., U. S. Graphite Co., Franco-American Supply Co., J. S. Bishop Co., Crouse-Hinds Co., American Co., Turner Brass Co., Therwin, Williams & Co., Heinze Electrical Co., Inland Pipe Wrench Co., U. S. Jack Co., Speed Changing Pulley Co., No-Ko-rode Co., Artizan Brass Works, C. J. Downing, Quincy-Manchester-Sargeant Co., W. E. Pratt Co., Langdon Brugger Co., P. M. Hotchkin, J. T. McCanna, J. A. Fisher, Weber Mfg. Works, Look Electric Co., Vehicle Apron and Hood Co., National Storage Battry Co., National Lock Washer Co., Marion Motor Car Co., Chicago Portable House Co., J. C. Morahon, Supplementary Spiral Spring Co., Adam Cook's Son, R. Temple, Adams & Elting, Long & Mann, Limousine Co., American Electric Novelty Co., Studebaker Bros. Co., Helios Mfg. Co., Ederal Auto Co., Lau Pearson Machine Co., Manhattan Electric Co., Adams & Westlake, L. C. Chase & Co., Reeves Pulley Co., I. Milton Waugh, Morrison McIntosh & Co., Empire Auto Tire Co., Auto Pump Co., Norton & Co., Lea Speedometer Co., Walton Automobile Garage, Rotary Triplex Pump Co., Arc Spark Plug Co., Auto Cape Top Co., J. C. Paul & Co., Perfection Auto Top Co. and Sterk Mfg. Co.

In the Retail World.

Arthur L. Witherell and Otto P. Nestman, who have been conducting the Holyoke Garage, on Division street, Holyoke, Mass., have dissolved partnership. Nestman will manage the business alone.

The Rutland Automobile and Machine Co., now located on West street, Rutland, Vt., will move to their new location on Wales street, as soon as necessary alterations are made. The company has leased the property for 10 years.

Osen & Hunter, San José, Cal., state agents for the Mitchell car, wil shortly open a branch house in San Francisco. The location is to be at 407 Golden Gate avenue, and that the venture will be a success is preassured, as the Mitchell has been received very favorably in the Golden Gate State.

A tire repair and vulcanizing establishment has been opened at 2210 Farnam street, Omaha, Neb., by the Omaha Automobile Tire Company, a new concern. Herbert Wheelock and Floyd Flynn, both of whom have had experience in Nebraska repair shops, are the owners of the business.

Between Bow and Plymouth street and near Quincy square in Cambridge, Mass., there is nearing completion a building to be used as a garage, which when finished will be excelled by few in the State. It is being constructed for the Harvard Automobile Company and is of fireproof cement and concrete, the same as the Motor Mart in Boston. The garage is to be two stories high, with 22,000 square feet of storage room, capable of accommodating 160 cars.

The Week's Incorporations.

Pontiac, Mich.—Monroe Body Co., under Michigan laws, with $125,000 capital, $101,000 paid in; to manufacture automobiles and bodies. Corporators not named.

Jamestown, N. Y.—Jacobson Motor Co., under New York laws, with $100,000 capital. Corporators—Charles Jacobson, G. F. Selstram and Jacob Jacobson, all of Jamestown.

Peru, Ind.—Model Automobile Co., under Indiana laws, with $50,000 capital; to manufacture and sell automobiles. Corporators—Milton Krauss, A. L. Bodudtha and W. S. Mercer.

American Locomotive Gets Big Building.

Announcement has been made of the closing of a real estate transaction which gives to the American Locomotive Company the new automobile building at the northwest corner of Sixty-second street and Broadway, New York City, for a long term of years. This is the largest automomile building in the city and the real estate transaction is said to involve more than $1,000,000 for the term. It has six floors and a basement of 13,500 square feet each. The building was constructed by George Boldt of the Waldorf-Astoria. It is specially designed for exhibiting and caring for automobiles. The new garage will be occupied by the American Locomotive Automobile Company, American makers of the Berliet car.

Metzger Comes Home Again.

William E. Metzger, general sales manager of the Cadillac Motor Car Company, of Detroit, Mich., arrived in New York last Saturday morning, after an absence of six weeks abroad. He reports a very satisfactory sale of Cadillac cars in Europe and increased orders for shipments during 1907. Incidentally, C. Bennett, general manager of the Anglo-American Motor Car Company, London—the British agents for the Cadillac—is on the water and due to reach this country early next week.

George Pope Heads Columbia Steel.

The Columbia Steel Company, of Hartford, which recently became a Connecticut corporation, has filed its certificate of organization with the State secretary. It names George Pope, Wilbur C. Walker and George T. Morrow, Jr., all of Hartford, as the directors. Mr. Pope is president, Mr. Walker treasurer, and Mr. Morrow secretary. The three mentioned were the original subscribers to the stock of the company, Mr. Pope subscribing for 2,998 shares and the others for one each.

Witherbee Makes Western Move.

The Witherbee Igniter Co., whose sparks have flown in so many directions during the past year, mean to strike still more fire in the West. To that end they are establishing a branch in Chicago at 1429 Michigan avenue, which will be stocked not only with a full line of Witherbee wares, but which will be equipped for repairs and recharging. In fact, the Witherbee people are making ready to pursue such an aggressive campaign that they must be reckoned with at all times.

To Build New Body Factory.

A. S. Claflin has bought the property at the northeast corner of Wabash avenue and Twenty-first street, Chicago, Ill., 22x102, with 68x75 feet abutting in the rear facing in Twenty-first street, for $40,000. The purchaser will construct upon the property a building to cost $35,000. It will be used for offices and salesroom for the manufacture of limousines and bodies for automobiles.

Electric Vehicle Reëlects Officers.

At the annual meeting of the Electric Vehicle Company held in Jersey City on Tuesday last, the following officers were reëlected: President, M. J. Budlong; treasurer, W. G. Henderson; secretary, H. W. Kyte; directors—M. J. Budlong, F. L. Kellogg, H. H. Vreeland, H. W. Kyte, W. G. Henderson, Albert Taylor, Grant B. Schley, Jr., M. Garvin, 2d., and W. O. Knudsen.

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HOW BUSSES MUST BE BUILT

British Authorities Outline Certain Structural Details—Lock-nuts Required.

Since the recent deplorable Handcross disaster near London, in which a Van Guard motor bus ran away down a steep hill and crashed into a wall, causing the death of a score or more of passengers, all who are interested in the commercial motor movement, which is fast assuming important proportions in Great Britain, have been seriously minded with regard to the licensing of such conveyances, and their safeguarding against a repetition of the accident. A formidable set of regulations regarding the inspection of public service vehicles was already in existence. It was at that time. however, looked upon as being in certain respects deficient, and since that event, the demand for more astringent regulation of the mechanisms has become even more pronounced than before.

Largely as a result of this feeling, probably, a new set of additional requirements has been proposed by the Commissioner of Police, which are very comprehensive, and are in a way, worthy the thorough consideration of every motor car designer, no matter what the intent of the vehicle upon which he is at work. The rules cited, cover the arrangement of the brakes, and specifications aimed at the prevention of fire due to any cause inherent in the machine, as well as general safety devices such as seem to be required for the protection of the travelling public. The more important clauses are as follows:

"When making application for the car to be inspected, the proprietor must specify the routes upon which he intends to ply, and these may not be departed from except after due notice has been given to the Commissioner of Police.

"The brakes should, as far as possible, be so affixed as to be capable of easy adjustment, and at least one must be so made as to be applied by the feet of the driver. No two brakes which operate upon the same part will be considered as "independent," and at least one should act directly upon the road wheels without any connection with the propelling gears.

"Stage carriages which are intended to ply upon routes which have long or steep hills, will be subject to a special test, and additional brakes may be required.

"All brake and steering connections to be secured with bolts and nuts, which must be locked or pinned.

"All parts subject to vibration must have lock nuts or spring washers to prevent them working loose and causing a rattling noise.

"Carburetters must not be placed in close proximity to magnetos, or to connections of wires carrying electric current.

"When a guard or tray is fixed underneath, it must be so constructed that any overflow of petrol from the carburetter is directly carried away and not retained in the tray.

"The machinery must be so constructed or placed that oil from the bearings is not allowed to drop on to the roadway. When trays are fixed to prevent this, they must have suitable webs for retaining the oil when ascending or descending hills, or be otherwise suitably constructed with that object, and oil must not be allowed to accumulate therein.

"The lubrication of the engine or the carburation of the working mixture must be so controlled that smoke is not projected with the exhaust, or from any other part. This will be rigidly insisted upon at all times.

"A bar, or more if requisite, having an eye or bridle to surround the propeller-shaft, should be fixed under the gear-box, so that in the event of either breaking, other damage or danger therefrom is minimized.

"The carriage is to be suitably lighted inside and outside. Where acetylene or other gas is used, the cylinders or vessels which contain the gas, or in which it is generated, must be fixed outside in such a position as to be removed as far as possible from the danger of accidental ignition. The pipes are to be led along the outside."

Pennsylvania to Require Red Tags.

Persons who own or operate automobiles in Pennsylvania after December 1st, the beginning of the fiscal year of the State Highway Department, will be required to display red enamel tags with white numerals and letters instead of blue tags, as at present. The new style of tags will be ready to issue in about thirty days, and in all other respects will be similar to that now issued by the department. A large portion of the revenue derived from licenses is being applied by Commissioner Hunter for the making of surveys for new roads throughout the State. So far this year there have been 13,500 licenses issued by the department. The State receives $3 for each license, which goes to pay the cost of maintenance of the automobile division of the Highway Department, and for such expenses as Commissioner Hunter may incur in the improvement of public roads.

Becomes a Michigan Corporation.

The Continental Motor Mfg. Co., which recently removed from Chicago, Ill., to Muskegon, Mich., has incorporated under the laws of the latter State with a capital stock of $125,000—an increase of $25,000. The personnel of the company, however, remains unchanged.

George A. Burwell, vice-president of the Lozier Motor Co., has resigned that office.

NO NEW AGENTS FOR FORD

Will not be Able to "Take Care" of Them—No New Model, Either.

After visiting all the principal Ford branch stores and agencies east of the Mississippi during the past four weeks, James Couzens, secretary-treasurer of the Ford Motor Co., let it be known last week that no new agencies will be taken on for next season as the company's facilities will be taxed to the utmost to meet the demands of its existing representatives. The six-cylinder touring car and the four-cylinder runabout will be the Ford leaders for 1907.

Contrary to a very general expectation, Mr. Couzens stated also that the Ford Company will not turn out an intermediate model. The company purposes manufacturing 1,000 of the six-cylinder touring cars and this together with the 10,000 runabouts, now in course of construction, constitutes a contract such as assures constant high pressure. To turn out another model might seriously interfere with the production of these quantities.

Motor 'Bus Lines in Prospect.

Half of the necessary $12,000 having been subscribed, the new motor line from Evanston, Ill., by way of Kratzville and Highland, over the Stringtown road, is fast assuming the proportions of a genuine undertaking. The initial service planned, will comprise hourly circuits over the twelve-mile loop. It is thought that the new 'busses will be running before snow time.

Plans are maturing for the installation of a new motor 'bus line to extend between Guadalahara and Chapala, Mexico, the latter being a popular pleasure resort. A representative of the new company which has just been formed, is now in St. Louis, Mo., looking into the question of rolling stock.

George Coddington, Auburn, Neb., has purchased a twelve-passenger automobile 'bus and will start the first public automobile operated in that part of the State.

Gilmores in New Places.

A. E. Gilmore, manager of the Rambler branch in Boston, is about to become a New Yorker. This is to say, he has resigned the Boston berth to become associated with Carl Page in the management of the White branch in New York. Gilmore will be succeeded by his brother, Clarence A., who hitherto has covered the Central Western States in the Rambler interests.

Kerosene Motors Go Up.

The Stanne Kerosene Motor Co., which was formed in Kankakee, Ill., in June, went into the hands of a receiver last week. Liabilities are placed at $25,000 and assets $30,000.

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Your Tire Equipment will pretty surely be of the Mechanically Fastened Type

But

beware of the style that needs no help to detach—that "comes off of its own accord," or near enough so when it is "demonstrated,"

Heed Safety

The Fisk Mechanically Fastened Tire

IS BUILT NOT ONLY FOR THOSE WHO WISH TO AVOID EXASPERATING TIRE TROUBLES AND WHO DESIRE COMFORT AND ECONOMY IN TIRE MAINTENANCE, BUT FOR THOSE WHO WISH TO BE PROTECTED AGAINST ACCIDENT

ITS POSITIVE RIM LOCKING DEVICE MAKES IT ACCIDENT PROOF. It absolutely cannot come off the rim of its own accord whether ridden inflated or deflated; yet its flat rim insures great ease of detachment if ever necessary.

THE FISK RUBBER CO.

CHICOPEE FALLS, MASS.

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Why Not Connected Information?

The blackboard and the megaphone contribute a fund of some intelligence to those who attend the Vanderbilt cup contests, but unless one follows the board closely—which none seems to do—or "keep tabs" on a score card, he has no means of knowing the standing of the contenders. And never were the telephones and the megaphone more meagre and unsatisfying than on Saturday last.

There was no continuity of reports or announcements. The wonder is that reporters were able to compose even partially connected stories. There were blanks and yawning gaps in the announcements which left overmuch to be desired and which set premiums on imagings. Competitors passed dozens of telephone stations en route apparently without report of any kind; others were reported stopped only to suddenly reappear a dozen or a half-dozen telephones beyond; other contenders disappeared for an hour or hours without word of any sort and still others—the Matheson, for instance—might as well have been in Africa or up in a balloon for all the $10-per-seat spectators learned of them. It seemed as if the earth had swallowed them up.

With such a splendid installation of telephone stations at 20 points on the route, there is small excuse for this sort of thing. It should be easily possible to report every car at every point and thereby to follow practically every move of the competitors and make plain where they made gains of position, or losses, and thus lend vital interest to the race and to keep it at concert pitch and also to make possible a satisfying story of the event.

If this would keep the megaphone man too busy or appear like expecting too much, surely it is possible to supply a report of the passing of each car at say each of five fixed points every time they pass. The system heretofore in vogue is too haphazard to be even partially satisfying. If one of the foreign nations should win the cup on October 6th, there may not be another race on American soil for many long years. It might, therefore, prove a happy idea to signalize next month's contest by a system of announcements that would savor of handing out whole slices and not merely occasional crumbs. The contest committee can do so easily if it but so wills.

About Fire Extinguishers.

That gasolene is not only one of the most inflammable substances in daily use, but that a gasolene blaze is also one that cannot be extinguished by ordinary methods, are facts that would seem to have filtered through even the most ordinary of intelligences by this time. Yet there appears to be no marked diminution in the number of cars that go up in flames from day to day. In many instances the loss is due to rank carelessness—recklessness of a degree that would be accounted as culpable were the matter one involving such a phase of inquiry. And, strange as it may seem, none but the non-motoring realize how utterly reckless of the consequences the average motorist is where fire is concerned.

The facts in the case being conceded, it may well be asked why means are not provided to lessen the damage when the fire does occur. Care is the chief requirement for guarding against it—no extra equipment is called for. But as with everything else combustible, fire is always a possibility, there would appear to be every reason for adding some means of extinguishing it to the accessories of every car. The choice must naturally lie between sand and chemicals and as the former must, of course, be used in bulk in order to be effective, this is eliminated except where it can readily be procured at the roadside, which is far from being the case at all times.

Efficient chemical fire extinguishers are small, readily portable and their cost is but a bagatelle when compared with that of the upholstery of the average touring car, not to speak of the greater damage that usually ensues from the burning of the wiring and the warping of the smaller parts of the motor. Added to this is the ever present risk of explosion. There will always be cars to catch fire and some of them will burn everything combustible on them—that goes without saying, but the addition of a few chemical fire extinguishers to the equipment of the average touring car would undoubtedly result in largely reduced expense bills in many instances.

Flexibility and What It Conveys.

Flexibility is a word that sorely bothers the man who hesitates to ask questions for fear of exposing his lack of knowledge; it is likewise a stumbling block for some of the wiseacres who pretend to know a great deal more about the automobile than they have been able to fathom in their more or less limited experience with the car.

"What on earth might a flexibility test be?" was a question very generally asked at the Open Air Show last spring, and it is a query that is repeated whenever the word happens to be used.

To the average man the word conveys the idea of elasticity—that of stretching, particularly, and stretching vertically; hence, the majority of those who were puzzled to find out just what the test which went by this name was intended to demonstrate, concluded that it had something to do with the springs. And this rather far fetched idea seems to obtain generally; springs are not uncommonly spoken of as being stiff or flexible so that a flexible car is one that rides easily over a rough road.

All things considered, it is not hard to understand how this has come to be the case. In speaking of automobile development, it is frequently said that the greatest advance made has been in the flexibility of the motor. Taking the latter in the sense

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in which is has come to be used by many, that is, as representing the car entire, it is not difficult to understand how this impression has come about. Not by the most violent stretch of imagination could it be said that the old-time cars were flexible in any sense of the word, goodness knows, they rode like dirt carts at their maximum speed—some of them, while others either broke their springs on slight provocation or allowed the axles and the body to come together in such an alarming fashion that there was small inducement to high speed even where the latter was possible, which was seldom the case.

But in the sense in which the word has come to be used in connection with the automobile motor, the word flexible is not a new technical term by any means. For instance, the steam engine has always been said to represent the acme of flexibility in the shape of a prime mover, and in the field of secondary power generation, the electric motor holds a like place, that is, the series wound type of motor. And by this is meant that the steam engine will respond to the demands made upon it within a wider range of speed than any other prime mover known. Take for example, the locomotive, which is capable of starting its maximum load standing and gradually accelerate until it reaches full speed. The same is true of the electric motor, but not of the internal combustion motor, and this is one of the latter's greatest drawbacks. In the first place, it cannot be started at all under load. It must run free until it has attained sufficient speed to pick up the load and the latter must be applied gradually whereas a full load can suddenly be thrown on a steam engine without stopping it.

This great lack of flexibility on the part of the automobile motor was the bete noir of the pioneer motorist. Until he had mastered this peculiarity of his motor, he found cranking it a frequent necessity as attempting to get the car under way often resulted in stalling the motor and the same thing is true to-day of the single cylinder type. Then again no amount of manipulation sufficed to make the motor ':pick-up" as it is generally termed when running up hill. The motor would frequently "die" even when the clutch was let in as easily as possible on the low gear and the greatest amount of "nursing" that the driver was capable of could not get the car over certain hills simply because the motor was lacking in that quality of flexibility.

This was due in large part to dependence upon the time of ignition alone as a means of increasing the speed and power, the addition of the present day throttle acting upon the same principle as the steam engine throttle, marking the greatest advance toward attaining the much desired quality of flexibility that has yet been taken. It has not overcome the inability of the motor to start with a load, but it has to a very great extent expanded its useful range of speed. The old time motor was a weakling at anything but its normal speed, which was high and it could not be run slowly with or without its load and particularly in the latter case, for which the use of the automatic type of inlet valve was mainly responsible. Without the suction generated by a high speed the latter would at times not function at all.

There is still another phase to this quality of flexibility and that is the capacity of the motor to continue running under an overload—a quality in which the series wound electric motor excels. Great progress has been made in this direction with the automobile motor, as witness its ability to take steep hills without the necessity of changing to a low gear and its power to accelerate when heavily burdened. More than that, it will now run light at a fraction of its rated normal speed and still develop an amount of power that is wholly disproportionate to its ability in this direction a few years ago when it was almost invariably necessary to race the motor before starting.

Flexibility is the goal at which every designer of internal combustion motors is aiming and while it has not been attained by any means, marked progress has been made.

Of the tens of thousands who gather to witness the contests for the Vanderbilt cup, the first instinct of common decency should inspire those who attend in automobiles to assist the common cause and promote public safety by keeping the course clear until the race shall have been completed. The manner in which many of such persons each year inaugurate the pell mell rush homeward while contesting cars are still in full flight, suggests such a hoggish disregard of decency as to induce those who prefer to think otherwise to believe that the yellow journaled condemnation of the class is not wholy unmerited.

AMERICA WILL START FIRST

Gets Choice of Position for Vanderbilt Cup Race—Foreign Drivers Here.

Hubert Le Blon, the French driver of the Thomas car that finished second in the elimination race on Saturday last, will be the first to start in the Vanderbilt cup race on Saturday, October 6th, having drawn that position at the drawing for start positions held at the Garden City Hotel, Tuesday night this week. As in previous years, the drawing was determined by countries and George Heath, for France, drew first, getting No. 2. Robert Graves drew No. 3 for Germany, Dr. Weillschott, No. 4 for Italy and A. L. Riker drew No. 1 for America. Then each member of the four teams drew from the numbers allotted his team and the result, which will be the order of start on October 6th, follows:

No.	Driver.	Car.	Country.
1.	Hubert Le Blon.	Thomas.....	America
2.	George Heath...	Panhard.....	France
3.	C. Jenatzy.....	Mercedes....	Germany
4.	V. Lancia.....	F. I. A. T...	Italy
5.	Frank Lawell...	Frayer-Miller	America
6.	E. F. Shepard...	Hotchkiss...	France
7.	Luttgens.....	Mercedes....	Germany
8.	F. Nazzarro.....	F. I. A. T...	Italy
9.	Jos. Tracy.....	Locomobile.	America
10.	Louis Wagner...	Darracq.....	France
11.	Foxhall Keene..	Mercedes....	Germany
12.	Cagno.....	Itala.....	Italy
14.	H. N. Harding..	Haynes.....	America
15.	A. Clément.....	Clément.....	France
16.	Dr. Weillshott..	F. I. A. T...	Italy
17.	W. Christie.....	Christie.....	America
18.	C. Duray.....	De Diétrich.	France
19.	Fabry.....	Itala.....	Italy

Thus it will be seen that eighteen cars will start in the big race and that the number representing each of the four nations entered is America, five; France, five; Italy, five, and Germany, three. By the way, this may be the last Vanderbilt cup race run on American soil, for if a foreign car wins the race, next year's event will probably be held in the country of the winning car. By rights this year's race should have been run on French soil, but France refused to take upon itself the burden of responsibility and, besides, it would not look well for an outsides to take the cup from France of its own soil, and as Tracy finished second by countries in the last contest the struggle this year remains in America.

All the foreign drivers except Wagner, who will drive the 100 horsepower Darracq, as a member of the French team, and Albert Clément, the young son of the builder of the Clément-Bayard cars, have arrived in this country, and are daily practicing on the circuit with touring cars. Wagner was expected to arrive in Montreal yesterday and Clément is due to arrive on the Celtic, which reaches New York to-morrow. Lancia, Nazzaro, and Dr. Weillschott, of the Italian team, Camille Jenatzy, Germany, and Duray, France, all arrived in New York last Monday on La Savoie.

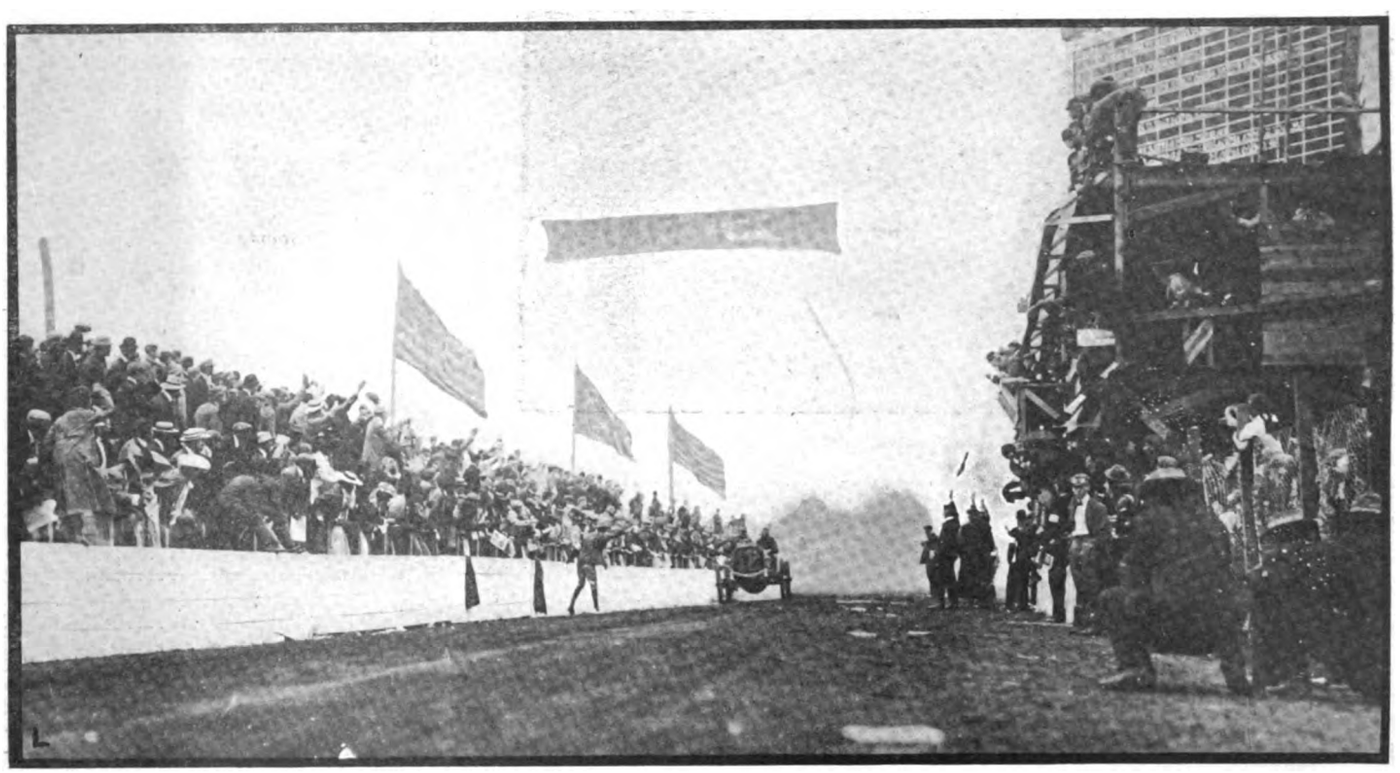
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THE TRIUMPH OF JOSEPH TRACY

Being the Story of the Race that Decided the Make-up of the American Team for the Vanderbilt Cup Contest—297 Miles in 327 Minutes

THE TEAM.

Joseph Tracy, 90 horsepower Locomobile.
Hulbert LeBlon, 115 horsepower Thomas.
Walter Christie, 50 horsepower Christie.
H. N. Harding, 60 horsepower Haynes.
F. Lawell, 110 horsepower Frayer-Miller.



ACCLAIMING THE TRIUMPHANT TRACY

It was a great day for the Itoldyouso family—was Saturday last, Sept. 22nd.

It was the day when the team of five cars and five drivers—not to mention the usually obscured drivers' assistants—was chosen to represent America in the great contest on October 6th for the Vanderbilt cup, now held by France. The Itoldyouso family was very numerously in evidence on the Long Island course over which was run the race of 297.1 miles that decided the make-up of the American team. Not less ten thousand members of the immense family were unable to be present, but distance merely lent enchantment to their prophecies. Each and every one of them knew that Joseph Tracy, driving the 90 horsepower Locomobile, would win the long race—and as all the world knows, Tracy accomplished the feat in masterly fashion. He completed the 297.1 miles in 327 minutes 45 seconds, or at the rate of better than 54 miles per hour.

All the big Itoldyousos, and the little ones, too, had been as cocksure that either Lytle, in the Pope-Toledo, or "one of the three Thomases" would finish second. And again was the knowing family distinctly right. One of the three Thomases—the one driven by the long whiskered Le Blon, —did run into second place, 24 minutes and 20 seconds after Tracy.

Where the Itoldyousos and the bookmakers and practically everyone else slipped up badly in playing the game of "picking winners" was in the placing of the third contender. With eight specially built racers of from 90 to 120 horsepower in the running, none figured that the little 60 horsepower highly-tuned Haynes stock car had more than a ghost of a show, despite the fact that two days before the race H. N. Harding, the clever, fair-haired Briton who had "done things" in this country in a British car, had been engaged to drive it as a substitute for John Haynes. There is no use of here going into whys and wherefors, but the long and short of the story is that Harding drove a heady race and the Haynes responded and performed like an exquisitely fashioned watch. Man and machine were consistent throughout and once more proved that the race is not always to the swift. But three cars completed the full course before the contest was called off because of the encroaching throng that blocked the back

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TRACY AND HIS ABLE ASSISTANT, POOLE

roads. The Haynes was the third of the trio, and it averaged better than 46 miles per hour.

But as a whole, it was, as already affirmed, a great day for the rank and file of the Itoldyouso family. They have uncommon reason for scratching their own or each other's backs.

Like a circus, the settings of and the scenes attendant on the starts of all these big automobile road races are very much alike; the side shows only are different. A long, dark ribbon of oiled road which divides two great wood structures—the official stand and the grandstand—and which in the doubtful light of early morning quickly loses itself in the far distance or is obscured by the bobbing heads of a craning crowd—a score or a half score of throbbing motor cars—a half hundred officials with red, white, blue, green and other colored bandages—brassards, they call—around their left arms—a few of the men carry small megaphones—a few policemen. On top of the double-decked official stand is a huge blackboard, a man in military garb, bugle in hand, and perhaps eight or ten or a dozen alert and eagle-eyed photographers. As the hour of six approaches there are calls and counter calls and a general hurry and scurry and buzz of animation. A car bearing the number 1 is pushed up to the white tape stretched across the oiled roadway; a group of men gather around it; most of them have watches in hand—they are the timers—another with his eye on one of the watches held where he may see it—he's the starter—calls off in a monotone "Three minutes," "Two minutes," "One minute," "Thirty seconds," "Twenty," "Ten," "Five," "Four," "Three," "Two"—"Go!" The "go" is fairly screeched into the waiting driver's ear and like as not it is accompanied by an emphatic slap on the back. Perhaps the car leaps forward; perhays it merely glides away. Whatever the fashion, in less than a minute it is a mere dot disappearing in the distance.

Each minute thereafter, the performance is repeated, until not one car remains. The race is fairly on and the crowd settles back, as the timers seek their perch in the upper story of the big stand and immediately in front of a battery of telephones, at each of which sits a man with the receiver glued to his ear. The remainder of the stand is peopled by reporters and newspaper folk—at least a hundred of them, only half of whom are workers.

As the crowd settles back, "Is that Mrs. Vanderbilt?" "Who's that woman in brown?" and similar queries punctuate the atmosphere. Everyone "sizes up" everyone else until one of the men with bandaged arms and the one with the biggest megaphone steps into the center of the road and announces "No. 2 has passed Bull's Head" or some other old place on the course. Later, the cry "Car coming!" and the blast of the bugle brings the crowd to its feet and causes necks to stretch. The car thunders by. The man with the megaphone announces its time. And so the day wears on.

To see the start of one of these races is to see the starts of all of them. Only the

ELAPSED TIME BY LAPS:

First Lap.

Pos'n in race	Driver	Car	Time	Speed for lap
1.	Lytle,	Pope-Toledo	0:32:33	54.7
2.	Christie,	Christie	0:33:05⅖	53.8
3.	Le Blon,	Thomas	0:33:34⅘	53.1
4.	Belden,	Frayer-Miller	0:34:03	52.4
5.	Harding,	Haynes	0:36:14	49.2
6.	Tracy,	Locomobile	0:37:53	49.0
7.	Lawell,	Frayer-Miller	0:50:17	—
8.	Callois,	Thomas	1:09:13	—
9.	Keeler,	Oldsmobile	2:14:01⅖	—
10.	Roberts,	Thomas	3:56:49	—

Second Lap.

1.	Lytle,	Pope-Toledo	0:32:19	55.2
2.	Le Blon,	Thomas	0:32:25⅖	55.0
3.	Tracy,	Locomobile	0:31:02	57.4
4.	Harding,	Haynes	0:36:14⅖	49.2
5.	Christie,	Christie	0:45:21⅗	—
6.	Lawell,	Frayer-Miller	0:37:24⅗	47.6
7.	Callois,	Thomas	0:34:13	52.1
8.	Belden,	Frayer-Miller	1:23:43	—
9.	Roberts,	Thomas	0:34:38⅗	51.4

Third Lap.

1.	Le Blon,	Thomas	0:32:08⅗	55.6
2.	Lytle,	Pope-Toledo	0:33:37⅗	53.0
3.	Tracy,	Locomobile	0:30:34	58.3
4.	Harding,	Haynes	0:38:20⅕	46.4
5.	Christie,	Christie	0:35:06⅗	50.7
6.	Callois,	Thomas	0:34:01	52.4
7.	Lawell,	Frayer-Miller	0:49:53⅗	—
8.	Belden,	Frayer-Miller	0:57:26	—
9.	Roberts,	Thomas	0:34:38⅕	51.4

Fourth Lap.

1.	Tracy,	Locomobile	0:29:48⅕	59.75
2.	Le Blon,	Thomas	0:31:46⅖	56.2
3.	Lytle,	Pope-Toledo	0:32:46	54.4
4.	Harding,	Haynes	0:37:56	46.9
5.	Christie,	Christie	0:53:56⅖	—
6.	Lawell,	Frayer-Miller	0:34:07	52.3
7.	Callois,	Thomas	0:36:47⅗	48.4
8.	Belden,	Frayer-Miller	0:60:00⅗	—
9.	Roberts,	Thomas	0:36:06⅖	49.6

Fifth Lap.

1.	Le Blon,	Thomas	0:32:11	55.4
2.	Lytle,	Pope-Toledo	0:32:43	54.5
3.	Tracy,	Locomobile	0:34:58⅘	51.2
4.	Harding,	Haynes	0:35:56	49.6
5.	Callois,	Thomas	0:33:04	53.9
6.	Lawell,	Frayer-Miller	0:36:41	48.6
7.	Christie,	Christie	0:49:25	—

Sixth Lap.

1.	Tracy,	Locomobile	0:29:29⅗	60.4
2.	Le Blon,	Thomas	0:32:32	54.7
3.	Harding,	Haynes	0:40:26⅖	44.1
4.	Lytle,	Pope-Toledo	1:24:47⅗	—
5.	Christie,	Christie	0:38:43⅗	46.0
6.	Lawell,	Frayer-Miller	0:49:56⅗	—

Seventh Lap.

1.	Le Blon,	Thomas	0:35:18	50.4
2.	Tracy,	Locomobile	0:37:26⅗	47.6
3.	Harding,	Haynes	0:35:56	49.6
4.	Lytle,	Pope-Toledo	1:02:46	—
5.	Christie,	Christie	1:28:00⅖	—
6.	Lawell,	Frayer-Miller	1:42:31⅗	—

Eighth Lap.

1.	Le Blon,	Thomas	0:31:43⅗	56.2
2.	Tracy,	Locomobile	0:30:59⅕	57.6
3.	Harding,	Haynes	0:39:53	44.7
4.	Lytle,	Pope-Toledo	0:46:59	—
5.	Christie,	Christie	0:36:55⅗	48.2
6.	Lawell,	Frayer-Miller	0:33:15	53.5

Ninth Lap.

1.	Tracy,	Locomobile	0:31:27⅖	56.7
2.	Le Blon,	Thomas	0:46:42⅖	—
3.	Lytle,	Pope-Toledo	0:39:27	45.2
4.	Harding,	Haynes	0:45:41	—

Tenth Lap.

1.	Tracy,	Locomobile	0:34:06⅖	52.3
2.	Le Blon,	Thomas	0:43:03	41.4
3.	Harding,	Haynes	0:39:02	45.7

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HOW THE RACE WAS RUN AND WON

Number	Driver	Car	H. P.	First Round—29.7 Miles	Second Round—59.4 Miles	Third Round—89.1 Miles	Fourth Round—118.8 Miles	Fifth Round—148.5 Miles	Sixth Round—178.2 Miles	Seventh Round—207.9 Miles	Eighth Round—237.6 Miles	Ninth Round—267.3 Miles	Finish—297.1 Miles
12.	Joseph Tracy	Locomobile	90	37:53	1:08:55	1:39:29	2:09:17⅕	2:44:16	3:13:45⅗	3:51:12	4:22:11⅘	4:53:38⅗	5:27:45
6.	Hubert Le Blon	Thomas	115	33:34⅗	1:06:00	1:38:08⅘	2:09:55	2:42:06	3:14:38	3:49:56	4:21:39⅗	5:08:22	5:51:25
14.	H. N. Harding	Haynes	60	36:14	1:12:28⅖	1:50:48⅗	2:28:44⅕	3:04:40⅗	3:45:07	4:11:03	5:00:56	5:46:37	6:25:39
2.	Herbert Lytle	Pope-Toledo	120	32:33	1:04:52	1:38:29⅗	2:11:15⅗	2:43:58⅗	4:08:46	5:11:32	5:58:31	6:37:58	Race c'l'd
9.	Walter Christie	Christie	50	33:05⅖	1:18:27	1:53:33⅕	2:47:30	3:36:55	4:15:38⅕	5:43:39	6:20:34⅗	Race called.	
11.	Frank Lawell	Frayer-Miller	110	50:17	1:27:41⅗	2:17:35	2:51:42	3:28:23	4:18:19⅕	6:02:51	6:36:06	Race called.	
4.	Gustave Callois	Thomas	115	1:09:13	1:43:26	2:17:27	2:54:14⅗	3:27:18⅗	Retired with magneto trouble at Mineola.				
16.	E. H. Belden	Frayer-Miller	110	34:03	1:57:46	2:55:12	3:31:12⅗	Broke wheel at East Norwich.					
7.	Montague Roberts	Thomas	115	3:56:49	4:31:27⅗	5:06:05⅗	5:42:12	Race called.					
1.	Ernest Keeler	Oldsmobile	60	2:14:01⅖	Carburetter trouble.								
3.	Ralph Mongini	Matheson	60	Ditched on Manhasset Hill.									
8.	Lee Frayer	Frayer-Miller	110	Broke radius rod at Roslyn.									

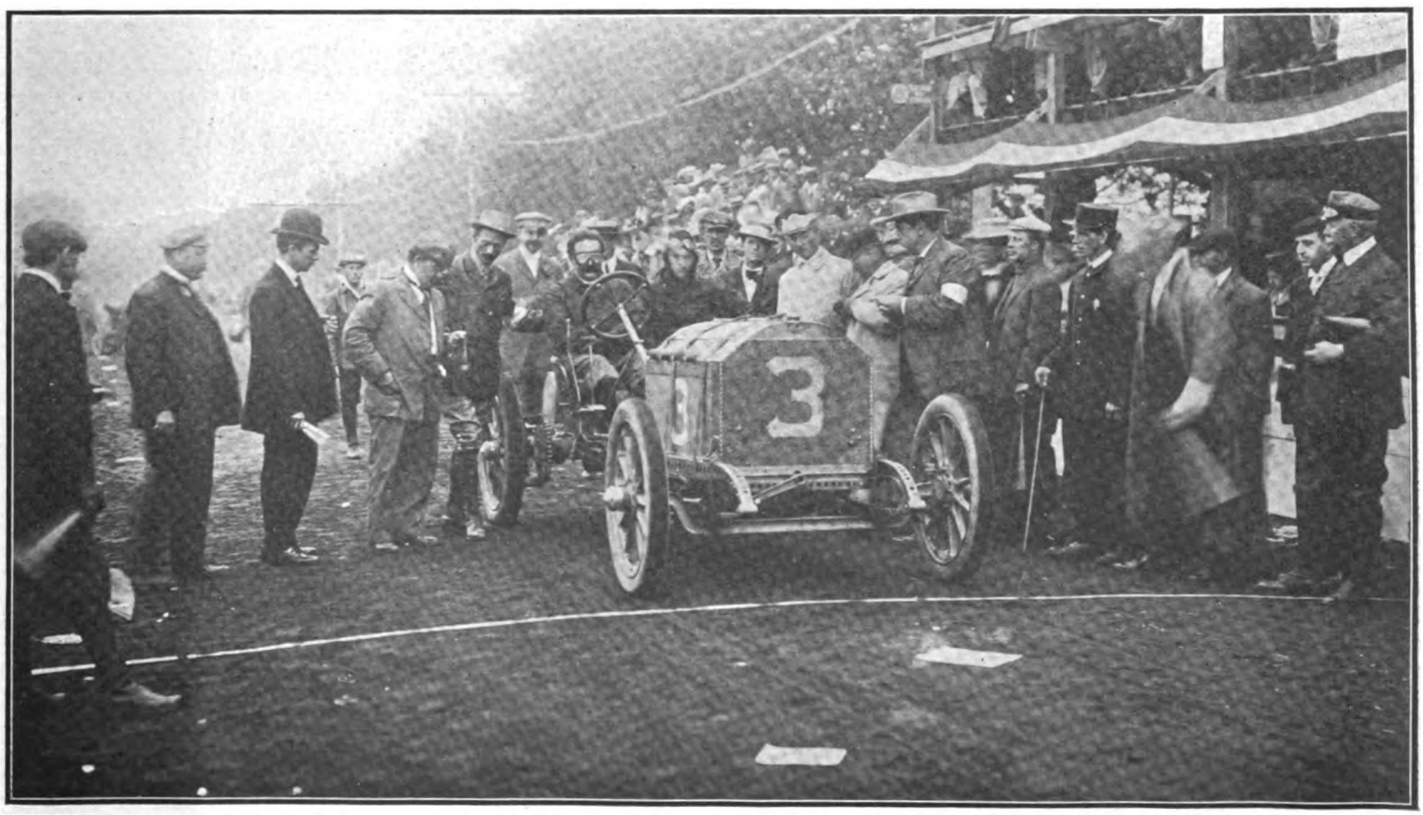
Average Speeds in Miles Per Hour.....Tracy, 54:45; Le Blon, 50:65; Harding, 46:20.

	Tracy	Le Blon	Harding	Lytle	Christie	Lawell	Callois	Belden
Best Rounds.....	29:28⅗	31:43⅕	36:14	32:09	33:05⅖	34:07	33:04	34:30

actors and incidents differ and rarely does the difference change the general view.

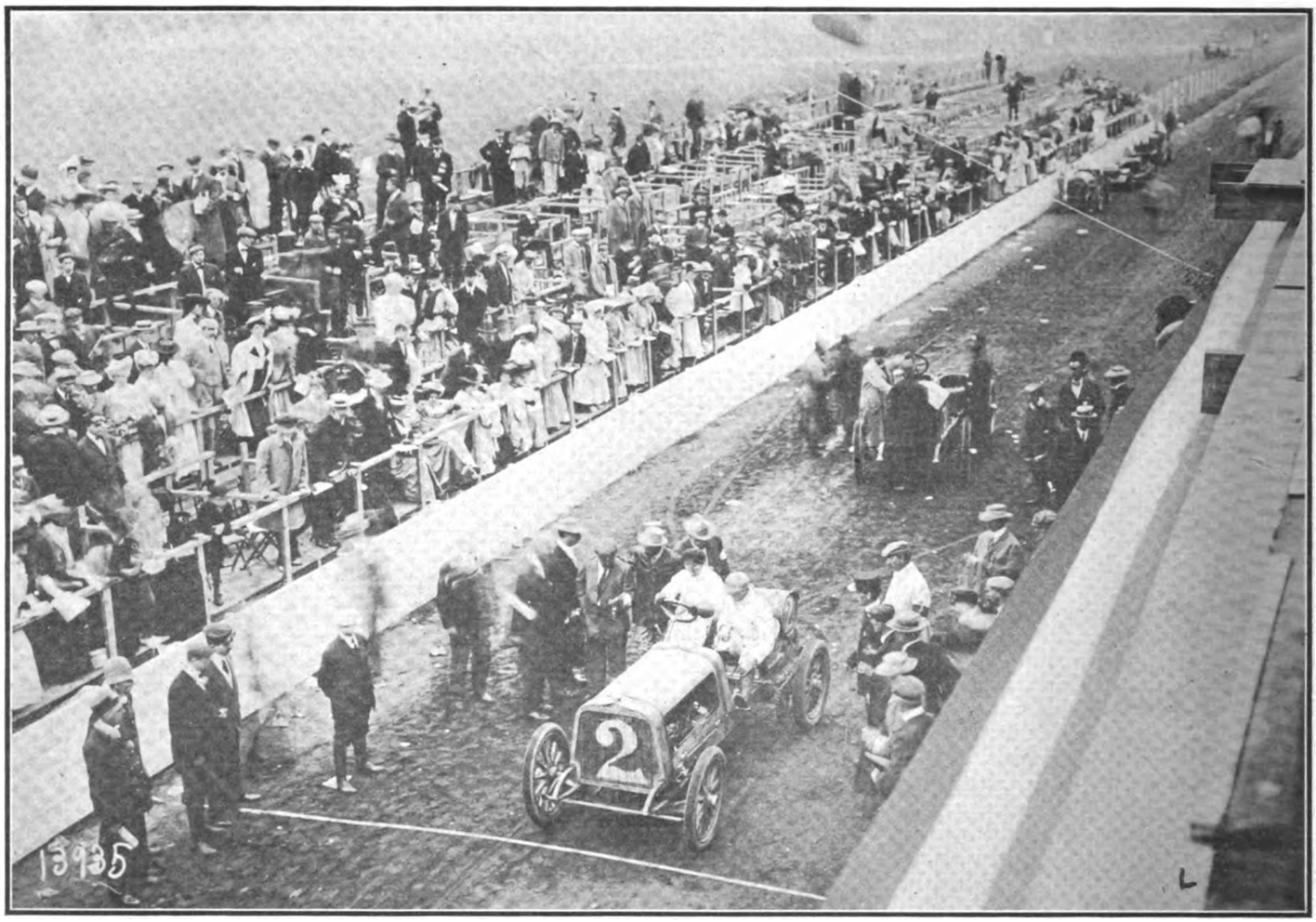
For the contest on Saturday and for the race for the cup itself on October 6th, the stands are much larger and more pretentious than in previous years and the arrangements for keeping the course clear are better and more effective. For a half-mile on either side of the stands, a high fence of wire netting has been erected. It gave a don't-tease-the-animals effect to the spectators behind the barrier, but it served its purpose. It prevented the rush and congestion that on previous occasions had required that the race be stopped after the leading cars had finished, but at the "hair-pin turn" at Old Westbury and other points there were no fences and the constables were powerless to stay the crowd that swarmed on the road after the first three cars had completed the distance. Automobilists, as always, were about the worst and most unreasonable offenders. When the danger became threatening and a fog added to the unpleasantness, Referee Vanderbilt ordered the race halted and called off the three contenders who were still circling the course.

The stands this year were gay not only with big, new American flags that fluttered proudly from their tall staffs, but with a new flag—one of yellow—or was it gold?—shot vertically and horizontally with shafts of green and in the center of which was the design of an automobile wheel. These flags, too, were new and fresh and added a touch of color that was not unagreeable. It was a damp, dark, disagreeable day that grew more threatening as the hours wore on. But the ladies were there in attractive garb, and not even their raiment or the green and yellow flag served to dim the



MONGINI (MATHESON) AWAITING THE WORD—A TYPICAL SCENE AT THE STARTING POINT

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GENERAL VIEW OF THE START

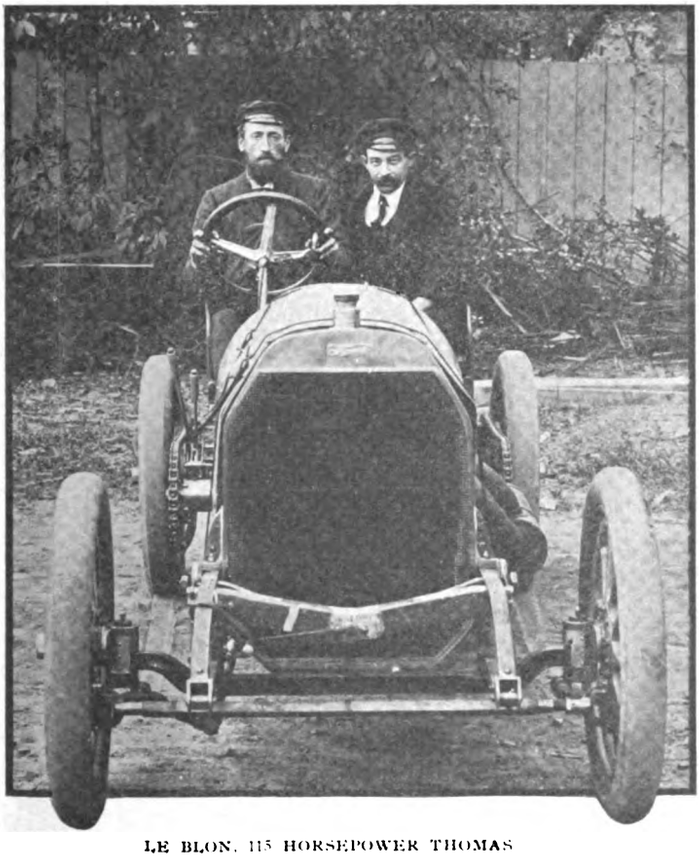
radiance of a pair of half-hose that showed above a pair of Oxford ties. They were in a front row box and near the tape. Their owner was a careful man. He ever sat with crossed legs, but he hoisted high his trousers that they might not bag at the knees and the socks that the hoisting disclosed! Ah! they were poems. It was a dull forenoon—unusually so—and but for those socks it must have been duller still. They were green—the real thing in green. There was no escaping them. They relieved the monotony not less than the music of the band or the querelous warbling of the volunteer quartette that raised its voice in the official stand when the dullness was most oppressive.

If it relieved the tedium, that sonburst of socks was not, of course, all that was in evidence. Mrs. Somebody and her daughter were in several boxes. "Jimmy" Breese was in another one. He had his whiskers with him but his roving eyes seemed less active than usual. E. R. Thomas, of whose three racers so much was expected, was a box holder, as was S. T. Davis, Jr., the head of the Locomobile establishment, and a coterie of Pope men filled another crib—Albert L. Pope, George Pope, Arthur Pope, Charles E. Walker were of the party. The Thomas box and the Davis and the Pope each had its period of joy and gloom. Each had cause for conflicts of emotion, but the gloom in the Davis box was short, while the joy gathered strength as the day waxed old.

Head and front of brassard-wearing officialdom was, of course, W. K. Vanderbilt, Jr., the donor of the cup and the referee of the contest, looking not a day older or a pound heavier than last year and as free from uppishness. He did not appear even to have donned his "Sunday clothes," nor did he affect leggings though his goggles were on his cap ready for use. Mrs. Vanderbilt, in mourning garb, occupied a front row box, but it must have interested the man-monkies who ape Wealth, to observe that Vanderbilt himself carried no display advertisement of grief—no "brassard of death" on his arm. J. De Mont Thompson, chairman of the whole affair, spick and span but rather chilling, was there, of course. Former Chairman Morrell and the chairman before Morrell, Pardington, too, were there with ribbons on their arms. There were others, of course—Starter Wagner in his ox-blood leather coat and golf hose and Committeeman Batchelder, for instance. Batchelder's leggins were an atrocious fit and he wore no plumes in his cap, but there were a lot of people who knew where some plumes should be. There also was one man—a rather frightened, blue uniformed young man in evidence. Chairman Thompson called him "William" and when "William" was not following the chairman like a Mary's lamb his eyes were sure to go. He appeared to be the Thompson valet or chauffeur or some manner of "man" but just what were his duties was difficult to decipher. He appeared poised for a jump and a "Yes, sir," if the Thompson fingers should snap.

The start of the race istelf seemed less smooth than usual. Keeler, in the Oldsmobile, was first away and without a hitch. Then came Lytle and Dingley in the Pope-Toledo. Garbed in white, they looked like millers and their jaws were grinding gum like hoppers. It was funny to watch the action of their jaws as the minutes and then the seconds were told off. They gathered speed with each moment and when "Go" was shouted in their ears, they were chewing the gum at the rate of a mile in 25 seconds. Ralph Mongini, looking fresh from the mirror and with the ends of his

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LE BLON, 115 HORSEPOWER THOMAS

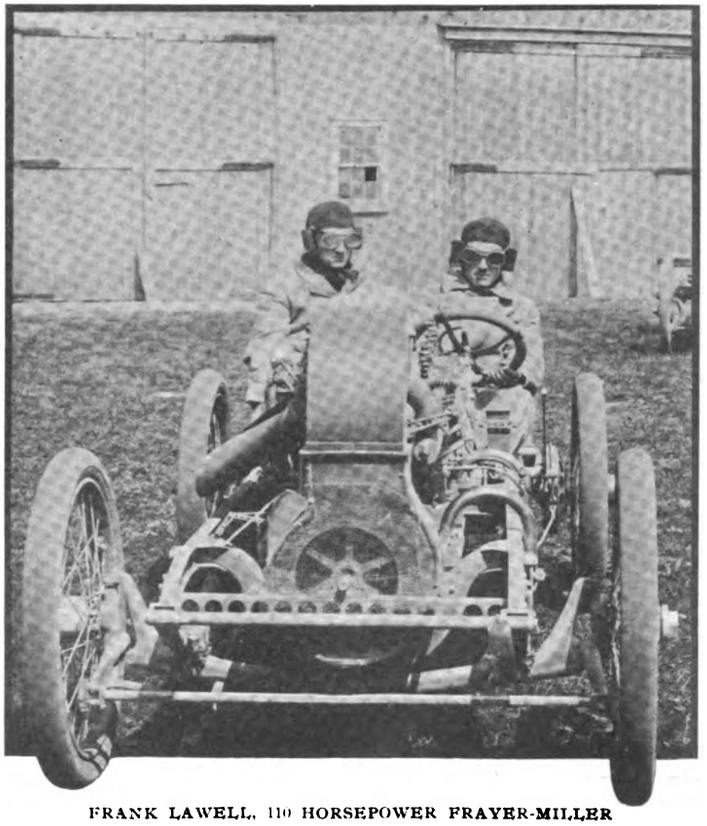


HARDING, 60 HORSEPOWER HAYNES

mustache pointing heavenward, after the fashion of Kaiser Wilhelm, was No. 3. He had sprained a wrist a day or two before and there was some doubt as to whether he would be able to drive the Matheson entry. But he drove, even if not for long, and the start he made was so smooth and pretty that the crowd gave him something more than an apology for a cheer that had greeted the other two. Callois—pronounced with a mouthful of mush—the noted Frenchman, who had been brought from abroad to drive one of the Thomases—was thirty yards away from the tape when he was called. He was tinkering with his car

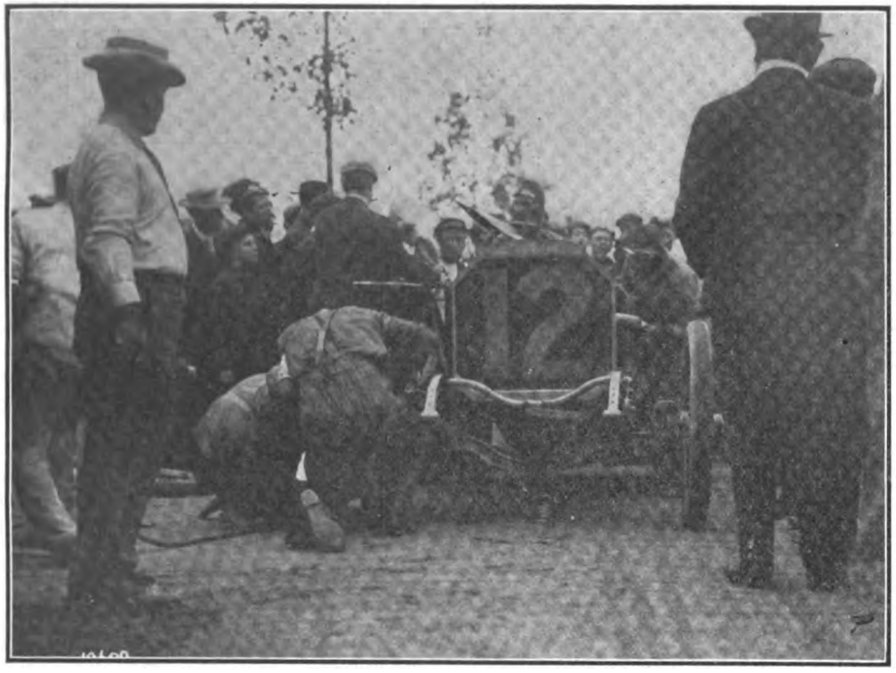


CHRISTIE, 50 HORSEPOWER CHRISTIE

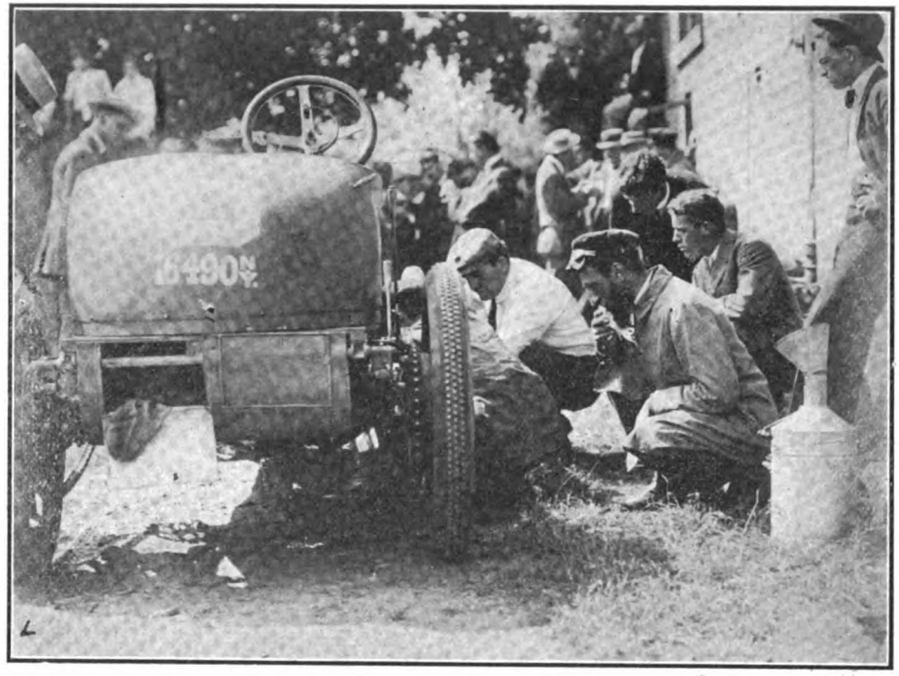


FRANK LAWELL, 110 HORSEPOWER FRAYER-MILLER

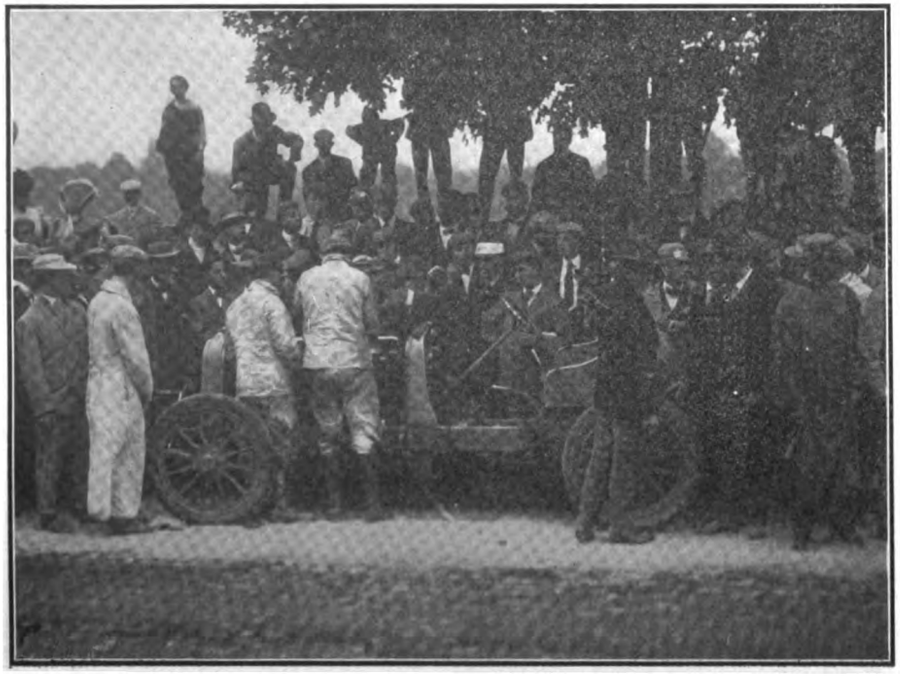
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THE FOUR-MINUTE REPLACEMENT OF TRACY'S TIRE



LE BLON LOOKS ON WHILE HIS CHAUFFEUR WORKS



WHERE AND WHY LYTLE LOST TIME



THE RUSH TO SEE LAWELL'S TIRE REPLACED

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and was in a flurry of excitement that soon extended to the officials. Callois lost several seconds, but once under way he disappeared like a flash. No. 5, W. H. Owen and the eight-cylinder Maxwell, did not start. The mechanism of the car had been injured the day before and although a touring Maxwell had weighed in it was decided best to withdraw entirely. No. 6, Le Blon, the other Thomas Frenchman, was also fussing with his car behind the line when time was called and caused another wave of excitement. Even the referee got excited and wildly waved the man on. He lost 26 seconds. Roberts, the young American who drove the third Thomas entry, was likewise tardy. He had ripped off the hood over his engine and was busy making some adjustment when he should have been on the tape. He lost nine seconds and left the hood behind him. No. 8, Lee Frayer, in the Frayer-Miller with its helmet-like blower, was pushed up to the line and at the word "Go" was pushed over it, one of the pushers-off inquiring as he did so, "Is it all right, Mr. Vanderbilt?" Mr. Vanderbilt nodded assent. Christie, with his low-built, front-driver, got away well, as did Lawell, in the Frayer-Miller, No. 11. No. 10, the lamented Apperson, which had promised so much in practice only to go to smash against a telegraph pole, a few days before the race, was absent, of course. Then came Tracy, cool as the proverbial cucumber. The crowd gave him almost a really hearty cheer as he waited the word.

"It's easy to see who has the sympathy of the crowd," remarked a by-stander.

Harding, in the little green Haynes, went next, and without incident. No. 15, the B. L. M.—which stands for Breese, Lawrence & Moulton—was missing. The builders had paid the $1,000 entry fee on hope. They hoped to have the car completed in time and they failed in the effort.

No. 16, Belden in the third of the Frayer-Miller trio, was the last to start.

"There's the coolest man in the race," commented a man familiar with the Frayer-Miller menage. Belden had a chance to prove the truth of the remark a moment later. He was no sooner started than he stopped. He had jammed on his brake and it took several seconds to release it.

Then the crowd settled back.

To tell the whole truth, the grandstand or the press stand is not the best place to see the race itself. After one witnesses the start about all that is to be seen is a succession of cars thundering by at irregular intervals. Of course, the blackboard and the megaphone make it possible for those deeply interested to "keep tabs" on times and positions and to know when, where and why at least some of the contenders are delayed. But as a spectacle or in excitement of variety of incident, the stands at Westbury are doubtful vantage points. On Saturday there was a very evident determination to keep the course clear and, it seemed, to waste no words in megaphone announcements. It may have been mere imagination, but it certainly appeared as if the information given out was "skimpier" and less connected than on previous occasions. It was due largely to the mysterious workings of the "grapevine telegraph" that those whose business it is to obtain information obtained news of the real happenings around the course.

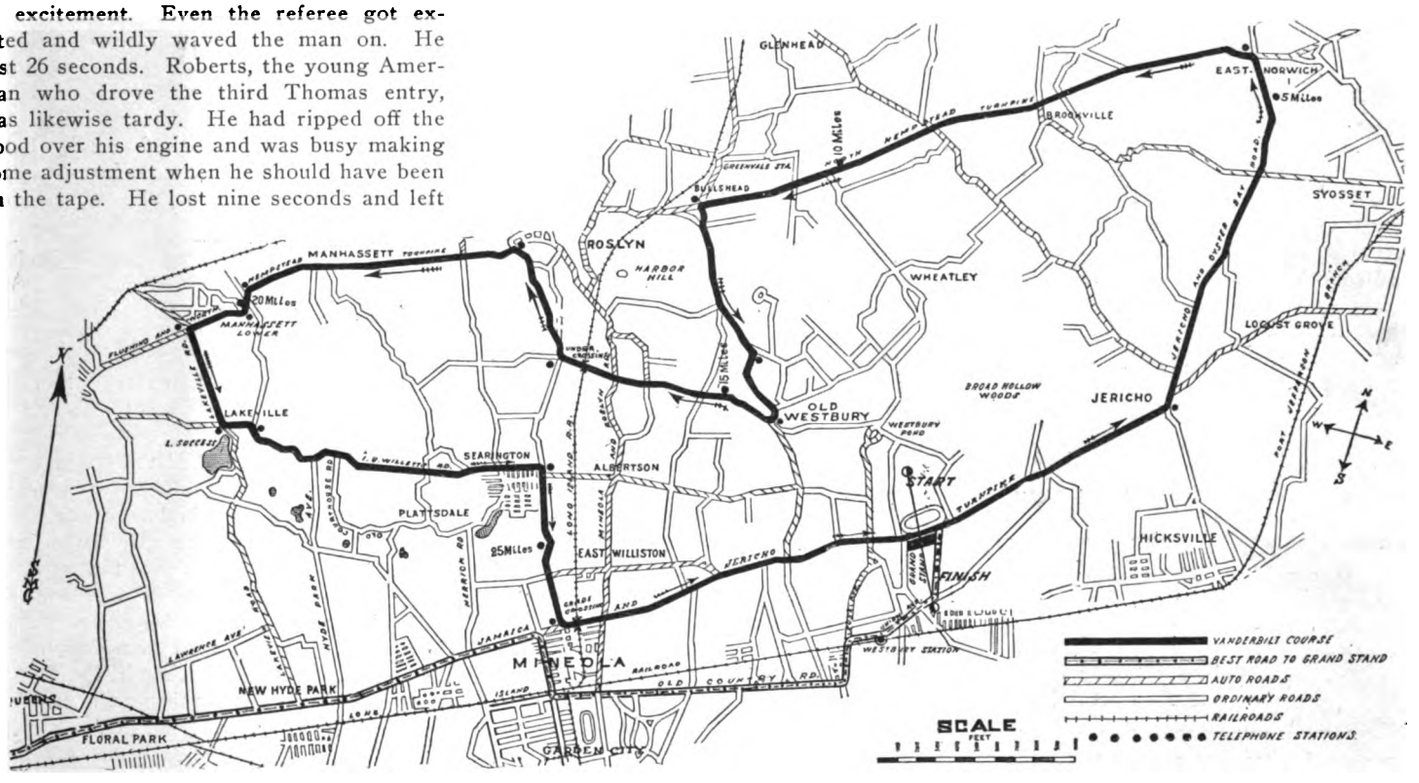
"No. 4 (Callois) going poorly. Broke cylinder at East Norwich," was the first megaphone announcement. Long after "No. 4 Going again," made known that the Thomas Frenchman, though probably disfigured, was still in the ring.

It was not long after Callois's trouble was reported that a groan went up. Tracy, the favorite, had stopped with a flat tire at the Old Westbury turn. Then came word that Lee Frayer was down and out at Roslyn with a broken radius-rod. Lytle passed the stand and secured a rather weak cheer. Then came Le Blon, followed by Christie, who had gained a bit on the whiskered one. "No. 12 (Tracy) has passed Mineola," was the startling news shouted through the megaphone. Until then he was supposed to be halted at Old Westbury. The announcement was received with a glad cheer, which was redoubled when he thundered past. His time, 37:53, proved that there had been no time lost in changing his tire.

"They must have done some good work at that tire control," was remarked to W. B. Miller, one of the big men of the Diamond Rubber Co., who chanced to be present.

"That's what they are there for," he responded in a matter of act tone without a trace of boastfulness. "It's not only because the tires are right, but we've had the experience in such affairs as this, that all the cars in the race are fitted with Diamonds."

Lytle was still in front at the end of the second round and going well; he had pulled further away from Le Blon, who, however, had run away from Christie. But the watches showed that Tracy had not only passed Christie, Harding and Belden, but had gained on the two leaders and was safely in third place. Belden and Christie had run into trouble and lost great ground; Frayer was known to be out of it; Callois had been reported limping, but when the first flighters had completed their second



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rounds, absolutely no word of Keeler, Mongini or Roberts had been received. It was as if they had fallen off the earth. "The leaves are falling fast," muttered one man. Then the "grapevine" buzzed in the official stand, but not through the megaphone, that Mongini had collided with a telegraph pole on Manhasset Hill and been injured, none knew how badly. Referee Vanderbilt disappeared about that time, and but few saw him take the official surgeon into his car and many might never have known that he had done anything of the sort had they not seen him when he drove back. It caused some gossip, but that was all. Mongini was not badly hurt. The grandstand never knew what had happened to him, and he was soon forgotten. It was not until after the race that the watchers at Manhasset made known that Mongini was proving the surprise party of the contest by moving faster than any of the others. He had gained practically the full minute on Lytle and was virtually on his heels and in the lead when he skidded into the telegraph pole.

Finally the megaphone announced that Keeler had stopped between Jericho and East Norwich and scarcely five minutes later that he had passed Old Westbury. It was more than an hour later when he limped past the stand. It was not until 8:08 that the missing Roberts was heard from. He was reported as passing Albertson at that hour. The race was half over before he passed the tape for the first time. Although hopelessly out of it, he kept going for four laps, a sickly smile on his ungoggled face, and then retired to the Thomas stable at Mineola where he wept real tears. Keeler had experienced a most unusual trouble—a blow-hole in his carburetter had developed and broken through, the in-rush of air destroying the mixture, of course. He plugged the hole with gum and other expedients but to no purpose. He could not easily substitute another carburetter as the injured one had been soldered in place. Roberts's gasolene tank had opened a seam but his chief trouble was in his transmission; its exact nature could not be told until the gears had been dismounted.

Roberts had hardly disappeared in the distance after his long absence when the skies themselves sprinkled a few drops. Lytle came again and this time Le Blon was in such comparatively close pursuit that it was plain to all that the Pope driver had lost the lead. Both were going in fine style but there seemed a dash about the Frenchman's driving that was lacking in Lytle. He had his head drawn away down in his coat collar as if chilled or as if to prevent his long whiskers from tickling his cheek bones. Tracy, too, was moving up. His had been the fastest round.

It was on the fourth lap, that Tracy assumed the lead. He negotiated the 29.7 miles in 29:48⅕—slightly less than a mile



REFEREE VANDERBILT, A. L. RIKER, AND EX-CHAIRMAN MORRELL.

a minute and the fastest lap of the day. The announcement caused the crowd to buzz but it caused John Kingman, of the Locomobile staff, to exclaim: "Too fast, too fast!"

Anyone who believed that all the tension in a race of the sort is centered in the participants, should have seen the same Kingman. Last year, he had spent the day on the cross-arm of a telegraph pole making motions, or signals, rather, to Tracy. This time, he strolled about the official stand. He was on "pins and needles" every moment of the time. He could not keep still, and when his manifest anxiety was smilingly remarked he responded, "This



VANDERBILT WITH THE SURGEON ABOARD

is nervous business—nervous business." A. L. Riker, the big, good-looking designer of Tracy's car, was also in the stand for a while. If he was nervous he didn't show it, but the gleam in his eyes showed his great pleasure. It was on the fourth lap, too, that folks began to "take notice" of the little Haynes. "Wonderfully consistent work," was Riker's admiring comment—a remark that expressed the general opinion.

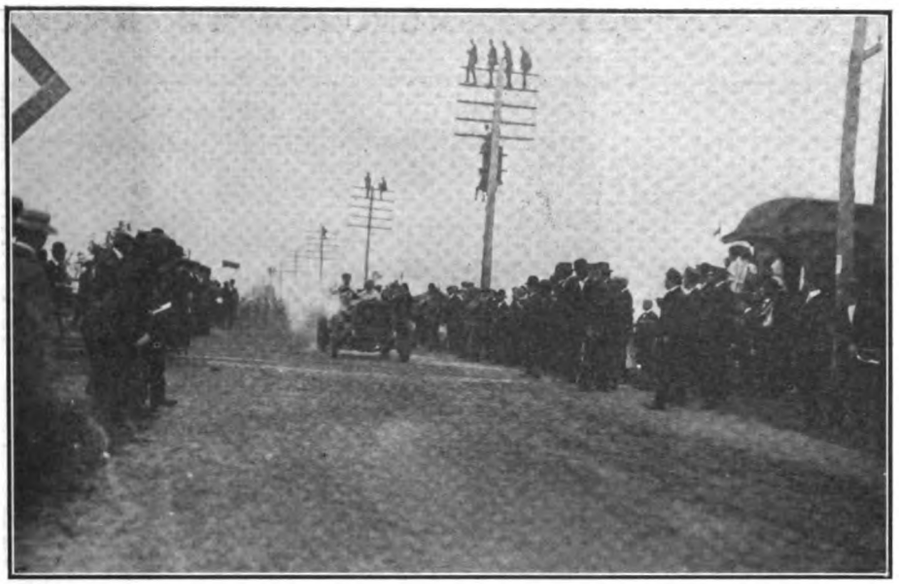
The rain which had been threatening all morning, broke at about this time. Big drops pelted down and there was a donning of rain-coats and a general scurry for cars or cover. But the pelting continued only for a minute and gradually tapered off to nothingness.

Things were distressingly dull at the stands. The crowd was plainly wearying when the band struck up "Waiting at the Church." It put the spectators in good humor and when some of the press men sang the chorus, it proved a good escape valve for the oppressiveness. Part of the crowd laughed and applauded while others hooted and cat-called in frolic. It encouraged the songsters to try other airs but these later efforts were feeble and fell flat.

The fifth round marked the beginning of the undoing of Lytle. Though in second place, he passed the stand with one tire in shreds and slapping the ground viciously at every revolution. It gave the crowd its only thrill of the day. Tracy, too, had evidently had a bad time for not only Lytle but Le Blon had passed him—in point of time—the Frenchman being in the lead. It was an hour before Lytle again was seen. After passing the stand, he stopped at the Diamond tire control at Jericho. The loose tire was in rags and he had run so long on the rim that the edges were so badly battered that the bead of the tire was pinched and made its removal difficult. The water-jacket of the Pope-Toledo was also leaking, the water spurting quite a stream at the lower edge. It required 12 minutes to change the tire, but Lytle appeared in no hurry and took his seat leisurely. Then four men took hold of the gigantic starting crank, but for three minutes it resisted their combined efforts; it took that long to restart the motor. He attributed his trouble to the derangement of his engine caused by the pounding due to running on his rim and also to damage to his change gear caused by the slapping it received from the shredded tire.

After the volunteer chorus had ceased its songs, the crowd lapsed again into weariness, which remained unbroken until Tracy was announced as having passed through Mineola on his final round—or, yes, it was broken once, when a dirty buck negro, coatless, collarless and hatless, dropped on the course from somewhere. Starter Wagner and the uniformed sheriff saw him at about the same time and rushed at him. Wagner reached the darky's collar-band first and

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LYTLE "HITTING" THE JERICHO PIKE AT A GREAT RATE

seizing it forcibly pushed the intruder the full length of the stands. The sheriff followed in their wake and the crowd gave them a laugh.

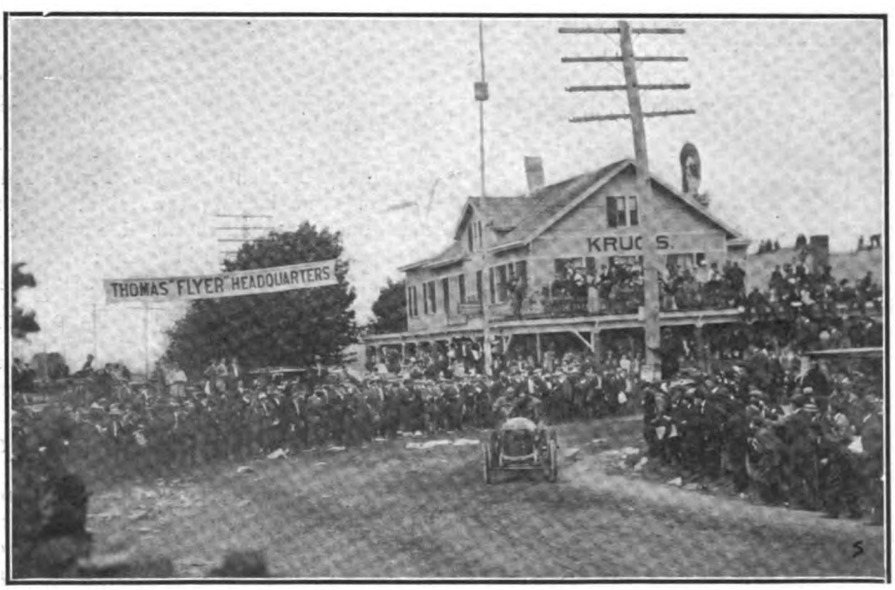
When Lytle and the Pope fell on evil times, Harding and the steady little Haynes moved into third place and there they stayed to the end. Callois, who, after his expensive first lap, had rejoined the hunt had been driving superbly and had worn down the lead of Christie, Lawell and Belden, each of whom had their troubles, went down and out for all time at Mineola, while on his sixth lap. He lost the nuts off his magneto, which, being placed in a not easily accessible position, rendered quick repair impossible.

Tracy regained the lead on the ninth lap and although few knew it both he and Le Blon, from whom he had wrested first place, had some anxious moments during that round. Le Blon had been obliged to stop to make some adjustments but it was after renewing his fuel at Mineola that his long flight came near going for naught. In refilling, some of the gasolene slopped over and he had scarcely restarted when the car was enveloped in flames. He stopped, of course, and willing hands helped extinguish the fire with sand. On that round, Tracy stopped at Mineola for a few seconds, then restarted, and he had but just disappeared around the curve, when his engine began to "cut capers." It limped for an eighth of a mile on one cylinder, then on two and the while Tracy's able helper, who, like himself, is not a mere driver but a graduate engineer, manned the big pump like a despairing sailor in a leaky craft. Their efforts succeeded. The big car regained its stride and thereafter all was over but the shouting. And he was given a great shout when he finished. He deserved it. It was more than 24 minutes later before Le Blon received his quota of cheers. The valiant Harding and the Haynes had still more than a lap to go when Tracy finished but they covered the last round almost as well as they had completed the first one.

The Pope-Toledo, Christie and Lawell—not to mention Roberts who was a matter of a mere hundred miles behind—were still still on the course and the crowd, or so much of it as remained, settled back for the "tiresome battle of the cripples," as some one styled it. The netting and the police prevented the homeward rush that had followed the finish of the first cars in previous races and as Lytle was a full lap behind and Christie and Lawell, two laps to the bad, a long wait was in prospect. The day had grown darker and more forbidding; a wet fog was setting in and everone was ready to become bad humored when the man with the big megaphone once more and for the last time assumed the center of the stage—on rather road. He let it be known that owing to the crowd at Lakeville which had invaded the road, and also owing to the fog, the referee had ordered the race stopped. The announcement was wholly unexpected, but it was not less a welcome one. The crowd did not stand on the order of going but went, and went quickly. The road soon was black with people and scurrying motor cars. Those who did not scurry quickly enough got wet. For the rain came down in torrents before the last man had cleared out. The spectators left supposing that Tracy, Le Blon, Harding, Lytle and Christie would constitute the American team, Lawell being in sixth place when the race was called. They knew nothing of the towing of Lytle, nor did the officials who sent word to him to report at the scales to "weight out." But while the referee, the associate referees and the chairman were in consultation around a table in the official stand, Lee Frayer, representing Lawell and the Frayer-Miller interests, appeared and made known that he desired to lodge a protest against the selection of Lytle and the Pope-Toledo. He was politely cut short by Referee Vanderbilt himself.

"Put it in writing and file it within 24 hours," he instructed.

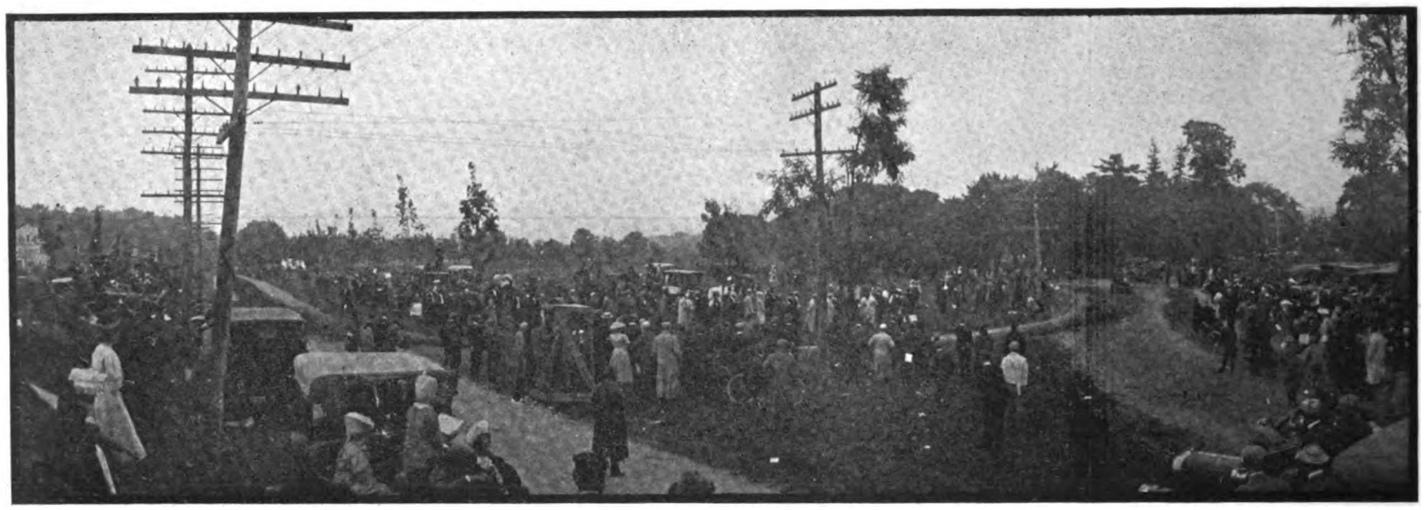
The protest was filed in season. It was backed by the affidavits of four persons who had seen the towing of Lytle but they were unnecessary. Albert L. Pope, representing the Pope-Lytle interests, appeared before the committee at its meeting on Tuesday, and in sportsmanlike fashion acknowledged the towing and placed Lytle's fate in the hands of the committee. They promptly disqualified him and gave fifth place, which means a place on the American team, to Lawell.



LE BLON TAKING THE TURN AT MINEOLA

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AT THE HAIRPIN TURN, WHERE THINGS REFUSED TO HAPPEN



PANORAMIC VIEW OF THE TURN AND THE CROWD GATHERED THERE

If at any point on the course things were expected to happen that place was the "hairpin curve" at Old Westbury, but as usual, sensational occurrences characteristically refused to occur and those persons who congregated at that place were undoubtedly disappointed. No telegraph poles were bowled over, no fences mowed down and there were but one or two instances of anything approaching sensationalism. Except for one scraped telegraph pole that Frank Lawell grazed on his second round and the few clods of dirt thrown up by the cars at the very apex of the triangular-shaped turn, the hairpin curve looked after the race as it had before. The busiest place anywhere near Old Westbury was the Diamond tire control a few hundred yards beyond the famous bend, for it was there that not a few of the cars stopped for repairs.

Around the official telephone box there was some little speculation as to which car would be the first to round the turn and when Lytle and the Pope-Toledo made an easy and slow turn at 6:15:30 the prophecy of the great majority was realized. A few minutes later came the news from the grandstand.

"It is reported that Keeler's Oldsmobile has blown out a cylinder near Jericho."

Following Lytle ten seconds later came Mongini, on the Matheson. The rotund Italian was driving like a demon possessed, and a glance at watches showed that he must have simply eaten up space between the grandstand and the hairpin turn. He had started one minute behind Lytle and in the first fifteen miles was trailing and in sight of the Pope-Toledo and his car was only half the horsepower of that which had started ahead of him. But that was the last seen of Mongini. Long after came the report that he had crashed into a telegraph pole near Manhasset.

The first semblance of a thrill was caused when Christie and his low-hung car did a serpentine twist and skid and nearly slewed off the narrow oiled road just before reaching the turn, but he shut off his power and made the turn easily. Lee Frayer, in a Frayer-Miller, came around a few minutes later but a few miles beyond a broken strut rod put him out of the running for all time.

Tracy and his Locomobile was the first combination to stop at the tire control. His right front tire was down. The Diamond crew proved that they knew their business. It took them only four minutes to rip it off, put another on and inflate it. All the other drivers took the turn easily and from a spectatorial standpoint the race was quite tame.

It was after seven o'clock, when Lytle, Le Blon, Belden, Tracy and Harding had made their second rounds, that Keeler and his Olds showed up for the first time. Two of his cylinders were missing and, of course, the car ran slowly. Keeler chewed the end of an unlighted cigar which caused one of those "dear young things" in a touring car to remark that it "must be Barney Oldfield." Belden and his Frayer-Miller lost an hour lacking ten minutes at the curve on his second round. He approached the turn very fast and in going around jammed his brakes, causing them to "freeze." The car came to a standstill on the turn just as Tracy came around. A collision looked inevitable for the moment but the nervy and cool-headed pilot of the Locomobile took a chance at going between Belden and the fence-topped bank and he got through safely although a variation of an inch either to the right or left would probably have resulted in disaster. Belden's car was hauled to the side of the road out of harm's way just as Harding thundered by.

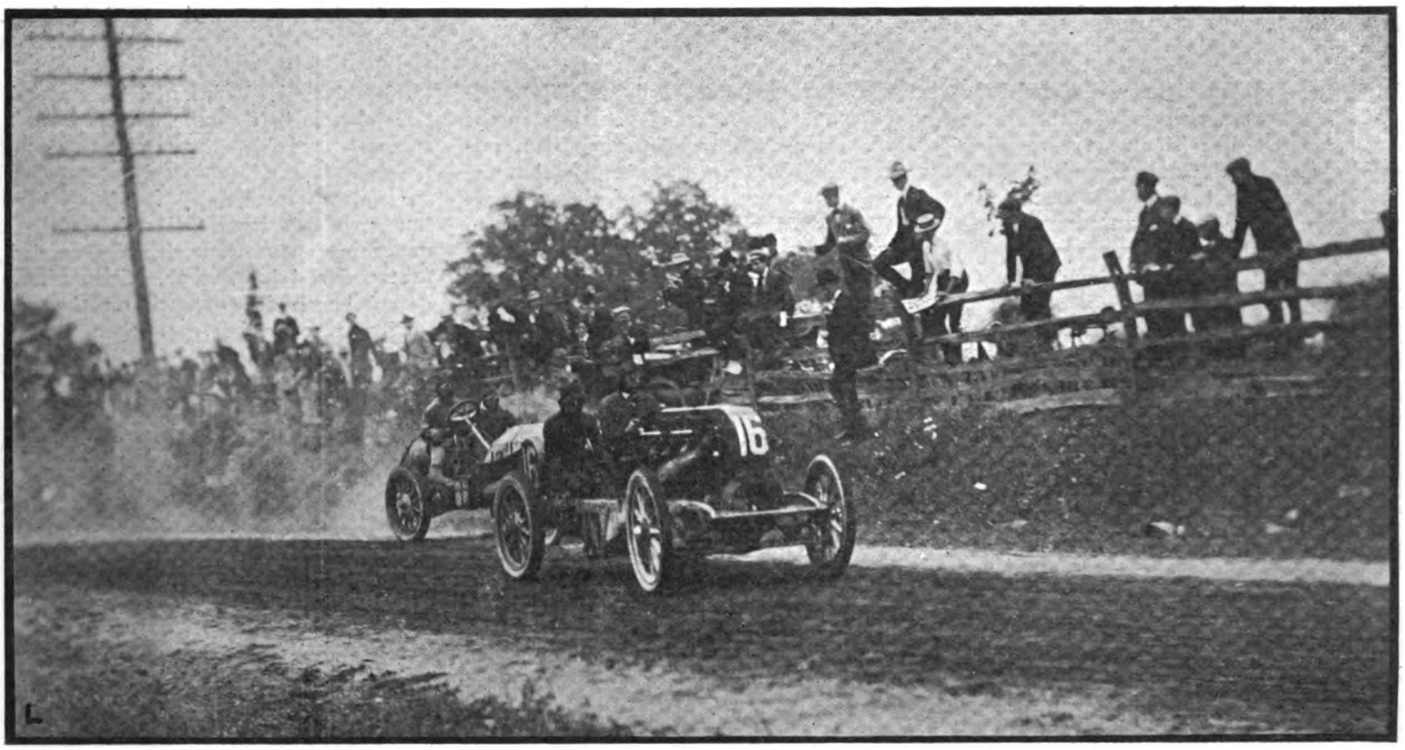
On his second round Keeler stopped at the Diamond control twenty minutes and during that time took on gasolene and tinkered with his damaged carburetter. When Roberts and his Thomas failed to appear at the expected time the crowd realized that something must have happened and besieged the telephone station for news of the popular young driver. When later he appeared, driving without goggles, and an "I'll-stick-to-the-finish" smile overspreading his features, he got a hearty outburst of applause and the smile gave way to a grin.

At ten minutes before eight o'clock the crowd received its third thrill when Lawell came near running into a telegraph pole after rounding the dangerous curve. His left rear tire had punctured and in trying to negotiate the elbow the car slewed dangerously. In trying to get it in the middle of the road he ran off the course and into the field bounding it on the left, his rear hub scraping a few slivers from one side of the pole. Then the car turned into the road again and before it could be gotten under control had headed toward the middle of the field. Lawell finally brought it to a standstill on the platform of the tire station and waited there ten minutes while the crew replaced both rear tires.

From that time until the leaders reached the hairpin curve on their ninth lap nothing of interest occurred and many of the spectators left. Le Blon was the first to appear for the ninth time and he stopped with a flat rear left tire at the Diamond station.

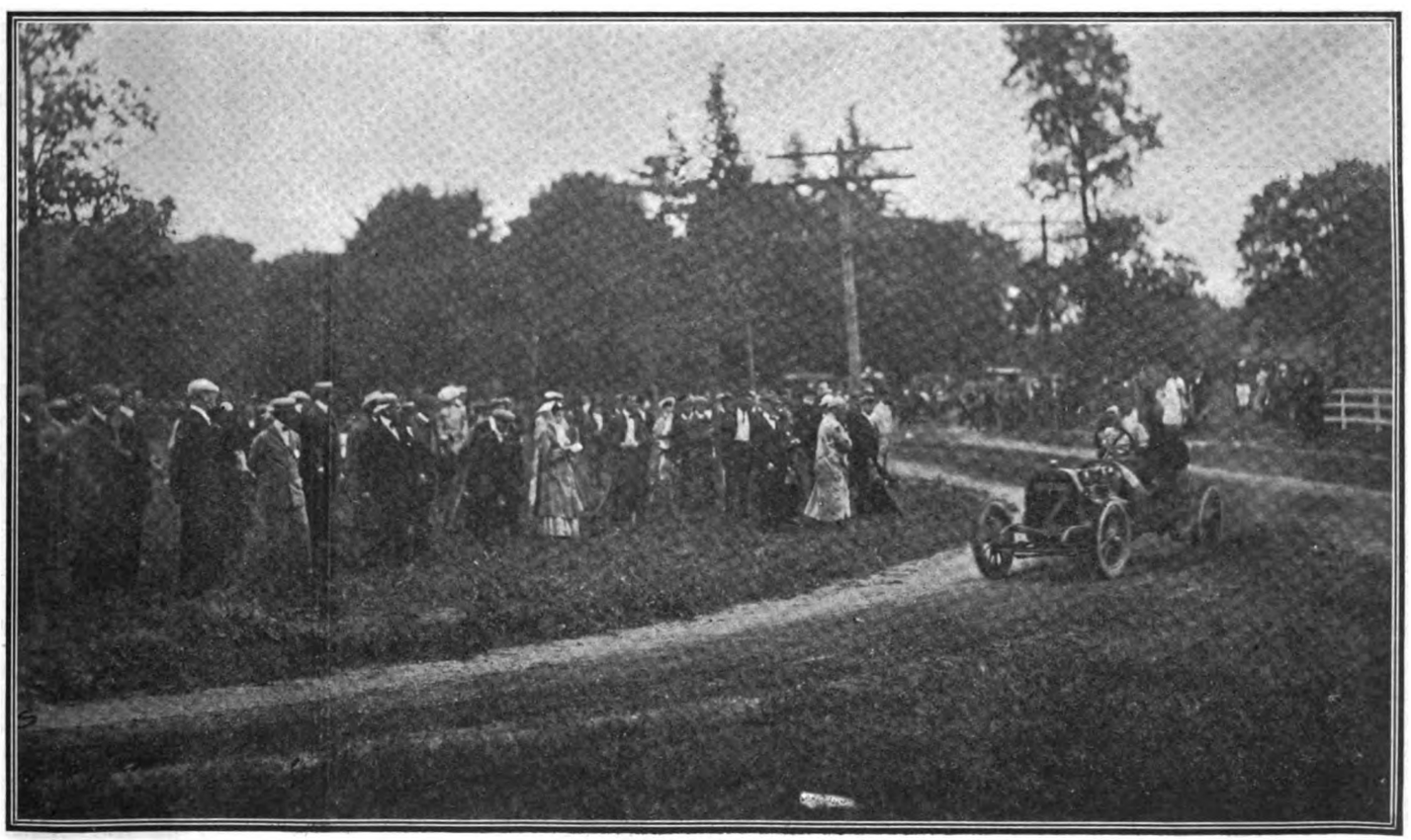
The car had no sooner come to a standstill than the bewhiskered Frenchman jumped about five feet in the air and shouted for a wrench. An attendant handed him the wrong one and immediately Le Blon let issue forth a string of choice French profanity that was lost on the crowd that surged around the guard ropes.

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ONE OF THE THRILLING MOMENTS—TRACY LITERALLY SQUEEZING PAST BELDEN

His car was equipped with removable rims and he had a spare one there with the tire already inflated so that it took him but 2 minutes 25 seconds from the time the car stopped until it was away again. But in the meantime something happened. On the previous lap Tracy had been trailing the Thomas car only about 2 minutes and the crowd soon woke up to this fact and began yelling "Tracy! Tracy! Tracy!" Just about the time Le Blon had gotten the rim off, a whirr was heard around the bend and a second later Tracy dashed into view. Although the crowd was not so very large the voluminous shout that went up must



THE BELATED ROBERTS, BEGINNING THE HAIRPIN TURN

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have been heard at the grandstand four miles away had the wind been in the right direction. As Tracy went past he gave a quick glance to the right where Le Blon was, but he did not even smile although he must have felt like shouting. Le Blon uttered a few more "Sacres!" and then the rim was securely bolted, the mecanicien gave a turn to the crank, Le Blon jumped into the seat, pulled the levers and was off almost before his helper had a chance to clamber up beside him.

After Tracy and Le Blon passed for the last time, Harding following a few minutes later, the quondam deputy sheriffs had their hands more than full in keeping touring cars off the course. Word came from the grandstand at half-past eleven to keep the course clear until three o'clock if necessary, as the race was not yet over, but the drivers of a score or more of pleasure cars did not pay the least bit of attention to what the deputies tried to tell them. By the time Christie came around the course was checkered with cars of all descriptions and he had several narrow escapes from running into some of them. Only four cars passed Old Westbury on the last round. On his last time Le Blon had trouble with his gasolene feed pipe and he stopped for five minutes half a mile north of the turn, to run a wire through the pipe. When Harding passed the last time, what appeared to be a piece of strut rod flew from the car, but he didn't stop, and a begoggled girl under a Panama hat gleefully carried off the steel rod in triumph. Soon after, the crowd began to encroach on the course, finally came touring cars—then the end.

ON MANHASSET HILL, WHERE THINGS DID HAPPEN



CHRISTIE ON ROSLYN HILL AND NEARING MANHASSET

Oddly enough, there seems to be an impression among those who are casually interested in motoring that hill-climbing is dull business from the spectators' point of view, and that however much of skill it may require on the part of the driver, in the objective, it is bereft of all that makes for thrilling sensations. Even when it is incident to a great and hurried road race, the hilly parts of the course are usually left to the technically interested, and a few stragglers. Perhaps largely on account of this erroneous notion, that part of the Vanderiblt course which follows the writhings of the Hemstead Turnpike through the hamlet of Manhasset and up to the reluctant shoulder of its hill, was left to the guardianship of the flagmen and a native representation which was largely local. Thus, counting a few motorists who came early, the entire aggregation on the hill from bottom to top, numbered perhaps a round two hundred.

Despite this apparent neglect on the part of the visiting spectators, there was plenty of excitement during the entire course of the trial. From the very beginning, when Mongini and his Matheson hotly pursuing Lytle in the Pope-Toledo, made a spectacular landing just around the second squirm from the bottom, until at the last, a flock of touring cars invaded the course, their drivers ignoring the objurgations of the frenzied deputies and mightily hampering the two or three contestants who were yet in the running, there was interest in plenty. But aside from these features, to the lover of good driving, who admires a skilled hand on the wheel and a willing motor pulling a mighty car up a long exhausting grade without faltering, no better coign of vantage could have been found than Manhasset.

The take-off is most seductive. A gentle rolling descent of perhaps an eighth of a mile at a grade which permits of best speed without risk, leads under an elm-wood arch to a short causeway at the foot of the old mill-pond. And here, without warning, the hill begins with a twitch to the left through an angle of perhaps sixty degrees and a sharp incline, which changes to an even moderate grade as the tangent leads through the main portion of the village with its baker's dozen of dwellings and stores. Here is a fork, the right branch of which introduces a pitch of about twelve or fifteen degrees, with a right angle bend to the right a hundred yards beyond. From this point, the grade is less severe for a time and then increases again to perhaps the same angularity, the course leading nearly straight to a point near the top where, at a barn, is the twenty-mile timing station. Just beyond, with a preparatory bend to the left and a reverse to the right, the course shoots straight away toward Clark's corner.

It was about six-twenty that someone in the little knot of people at the beginning of the first turn below the hill, announced the approach of the first car. Then, two or three minutes later, the flags began to wave for the first time, the deputies awoke to their duty and commenced urging the

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people back, and then, with wide open throttle and answering exhaust, the No. 2 car, under Lytle's practiced hand, came skipping down the grade, challenged the upward turn at the foot, and passed on. But the flags were still going, and just as Lytle swirled out of sight, came Mongini, third to start, and, wonderful to relate, scarcely 10 seconds behind the big 120 horsepower Pope car. The Matheson was certainly proving itself a surprise party. Mongini took the pitch at a frightful pace, evidently bent on passing his predecessor before the level was reached. This he might have done, had it not been for the intervention of fate.



THE HAYNES ASCENDING THE HILL; THE DISABLED MATHESON AT THE ROADSIDE

Instead of straightening out as he should have done after rounding the first bend, Mongini brought the car too far to the right and a little off the oiled path, recovering badly, and landing on the far side of the road. There, a combination of too much oil, a depression in the track and possibly a weakened left wrist which was still a bandaged reminder of some ill-advised manoeuvre of the week previous, served to set up a bad skid as he attempted to recover again, finally putting the car nearly broadside to the road. A quick turn of the wheel, however, served to get him into the course again, but not without setting up that terrible swaying of the rear end, which nearly always is fatal when high speed is being made. And so it was in this case.

Just at the second turn, midway of the steepest pitch, or thereabouts, the nigh hind tire gave way, and the car plunged across the road to the high bank on the right, narrowly missing the fence on the other side in doing so, and thereby escaping a jump down the steep slope. Careening along the bank for twenty feet or more, plowing up the turf and almost on its side, the front wheels brought up against a telegraph pole. The momentum of the car was so great, however, and the direction of its impact such, that instead of coming to rest, as would have been expected, it swung around as though hinged to the staff, and after thus describing an angle of one hundred and eighty degrees, stopped in the gutter parallel with the course, yet facing in the reverse direction—a most remarkable evolution.

The shock of impact, although not sufficient to stop the car altogether, yet was sufficient to fairly shoot out both of the crew. Mongini, contrary to all precedent of such accidents, instead of remaining imprisoned behind the wheel or slipping out at one side, was catapulted bodily upward, striking against the pole several feet above the car, finally landing in the road beside the machine, just as it came to rest in its ditch. The mechanic pursued his original line of motion in a general way until he earthed a dozen feet or so in the lead. Neither was hurt seriously, although Mongini, partially stunned by hitting his head against the pole, was bewildered for several minutes, and limped about inquiring of the bystanders what had happened to him. The lad, Green, recovered more quickly, and footed it off up to the timing station, to report to the grandstand.

The people came scampering from each side, covering the course, neglecting the warnings of the deputies, and generally risking their lives as they crowded about the car and its grease speckeled driver. The latter, now himself again, though nursing a pained knee, was pushing about among the people inquiring in shrill tones:

"'Ow high deed I go Woo saw me go op?"

One grey-bearded native in overalls, who between chuckles, was telling how many times he himself had been thrown from a wagon, stoutly affirmed that he had clipped the cross-arms of the pole, and stuck to it under all questioning. At all events, it was readily to be believed, as he said, that he "never seed anything like that nor all my life."

"Yes, yes, I know," said the burly Italian, when half a dozen tried to tell him at once how it all came about, "Wen I got just to zat corner, my hind tire go, and zen I know I am way off here, and I hit something in my head, and zen I am here. But 'ow I got here?" And he would turn away with a Continental shrug of the shoulders and ask again of someone else.

The left rear tire being flat, and the wheel cramped inwardly, there was no other outward indication of trouble, and at first it was thought that the chances of going on were good. But an effort to turn over the motor made it plain that there was local trouble there, and after a time, the attempt was given over. Mongini strolled off with one of the natives and presently returned puffing a cigar, still endeavoring to discover "'ow high he had gone."

It was only five minutes, but it seemed an hour, so great was the excitement, and then came another—Le Blon, with the second of the Thomas trio, sixth to start. At the critical point on the hill where Mongini had commenced his exploit, he cut out his ignition, but was a bit nervous, perhaps, and lost time. He recovered quickly, however, and shot away with an acceleration which was simply wonderful.

The next to appear was Christie, the ninth starter and fourth at this twenty-mile point. Here was an opportunity for much speculation as to what could be the cause of the delay of the other two Thomas cars, the first of the Frayer-Millers and the Olds. This was increased still more when at 6:38 o'clock the Haynes, under Harding's tutelage, came up in good shape. There was no means of knowing where the others might be, however, and speculation and rumor had its own way for a time.

They were coming in at short intervals now. Callois with the Thomas No. 4 car, hardly a minute behind Belden, at six thirty-nine or thereabouts, and Tracy, at six forty-one. There could have been no doubting it was Tracy had the number been altered. No other driver in the race would have been content to take the turns on his first round with such a leisurely air of certainty, and with so little haste. He was by no means slow, yet slower than some of the others had been, and seemed as though merely trying out his car. It was not until his third turn, that he began to push the motor, and not until his fourth that he began to show signs of anxiety.

Lytle's second round from this point was completed at 6:57, making an elapsed time of thirty-three minutes flat acording to the rough calculation possible to casual timing. He was up and away in good shape. Six minutes later, came Le Blon,

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the second time, cutting out for each little bend as before, but recovering quickly. In his running throughout the race, and as well in that of the other Thomas men, was seen at once a definite method of control, revealing long training, though that on the the course had been somewhat limited as to time, and also showing to great advantage the magnificent powering of the cars. Not once did one of them fail of cutting out at the turn, nor once did the motors refuse to yank the cars onward into the face of the hill at an acceleration not seen in any other car, and with an evenness which was delightful to behold.

Tracy's third climb was voted the best in the race so far, and was over by 7:45. Then one of the mysteries was solved, for along came the Oldsmobile, limping on a missing engine, and having some difficulty in making the pitch at the foot of the main hill. The trouble was evidently increasing, and came to a head just as the Matheson wreck was passed. The engine died. Keeler declutched and vigorously "twiddled" the ignition lever. A gasp or two and then a roar answered the coaxing, and he attempted to clutch in again, but was too hasty and stalled completely. The mecanicien jumped out to crank, and began to turn bravely. The crowd closed in. Just then the old cry, "Car coming" was raised, and the people combined to push the car off the course to one side, while the mechanic still cranked the motor, while the pet cocks spit out an occasional flame. The Haynes car passed smoothly.

Then the Olds motor began to show signs of returning life, and Keeler raced it madly in an effort to regulate its action. Suddenly there was a burst of flame from the carburetter side, a yell of "fire" from the panic-stricken crowd, and a scurry well worth seeing. Meantime Keeler jumped out, ran to the rear to shut off the gasolene, found the cock fast, and scampered around to the off side in front to join the mechanic in throwing sand on the flames. It was all over in an instant, but it took two or three minutes for the crowd to recover itself sufficiently to draw near again. When it did the car was ready to start once more, and got away lamely, after a six minute delay.

Christie, on his third trip around the course, followed the Haynes, just ahead of the Oldsmobile. Five minutes later Roberts came along with his smile, making a galant though somewhat delayed first appearance. When it sank home that he had been stranded somewhere and had pulled himself together again, the crowd saluted him feebly, which seemed to please him, judging from the smile.

Eight o'clock, the race two hours old, and only one car three rounds to the good! Then came Le Blon at three minutes after the hour, driving like a bearded whirlwind, with his whiskers blown flat against his throat. Callois was but a couple of minutes behind him. He was only three rounds past, but whatever had been the matter, he certainly lacked no power for the hill.

The race seemed now to be about half over. Things began to grow tedious, and no more "sensations" were vouchsafed the hangers-on at the turns. Half-way up the hill, and just at the timing station, the Oldsmobile came to a stop on its second round. It was but a little after nine, and the other cars seemed to be getting on far better. Up the hill, came the car, with its motor beating a distinct one-two-three-four tattoo, which told of a laboring motor, and then, as the mechanic attempted to better the ignition by handling the tremblers, stopped. Just as it was about to start on again, hardly improved by the treatment it seemed the Haynes slipped by.

Half-after-nine, and Belden's car labored up to the checking station evidently under difficulties. Nursing the engine, the driver finally was forced to stop for a second or two, and then got away with Christie close in his wake, and sparring for a chance to pass. His car lay so close to the ground that in that as well as other respects, it seemed a sort of travesty on what a car should be. Its behavior, however, both then and throughout the race, quite belied its appearance, for it ran finely, with an occasional irregularity hardly worth considering in the total.

Tracy, Le Blon, Harding and Lytle now were getting an ovation growing in strength at each appearance. Everybody was an expert at timing by this time, and the prophets who foretold which car would be next, and what would be the time, were easy to find and hard to lose. Somehow they seemed not to be thoroughly en raport with the grandstand, however, for they guessed wrong most of the time. But such is the fortune of races.

Lytle's eighth appearance which was delayed until 11:47, was made noteworthy by the canvas covering in place of the hood of the motor and the water spraying back into the faces of the crew. Just before his passing, and directly in front of Harding and the Haynes, came a little touring car of mean proportions, butting its way down the course, regardless of the protests of the deputies. When Harding came into view, there was a warning cry, the driver attempted to turn out but only got part way, and then the racer flew by narrowly missing the rear of the tonneau in which were a couple of protesting women.

This was the beginning of the end. After Lytle, and not before Le Blon, without his goggles, had passed, came more touring cars, singly at first, and always heralded by the red flags. One in particular defied all attempts to stop it and coming at a frightful pace considering the risk, tore down the grade toward the foot of the hill. One of the deputies, Will Cook, by name, braved the danger of being run down, and stood directly in the path of the car waving his flag. Without swerving or reducing speed in the least, the driver bore down on him, and he jumped aside just in the nick of time. At the same moment he hurled his flag with all his force at the head of the man at the wheel, the bunting wrapping about his shoulders in the wind of the car. Others lower down the hill tried to stop the machine but failed, and it charged away out of sight at a good forty-five mile clip. Those in the road noted down the number—15270 N. Y.—for future reference.

This thing was getting to be serious. Car after car came along. Some of them would stop or turn aside on signal, some would not. The deputies were all at sea. Those of the drivers who would pay attention to them said they had been told by other deputies that the race was over and the course clear. Yet the racing machines continued to come at less frequent intervals, their drivers evidently unaware that the race was over, if indeed it were. The men had had no specific orders, they said, covering such a contingency.

All down the course was wildest confusion. At one point the flagmen would be discovered leaving the course with their signals rolled up and tucked under their arms, and hardly out of their sight would be an excited little group of deputies and other flagmen, scheming to stop the next car, with yellow flags or human barriers.

At the top of the first hill outside Manhasset where Plandome avenue joins the Hempstead Pike, they stretched a rope across the track and only removed it when a racer was near. This worked very well for a time, although one or two pugnacious drivers were stopped who wanted trouble. Finally a particularly stubborn one, driving a small car of the inoffensive sort as far as the infraction of speed laws is concerned, refused to get off the course or go on, or back up, or in fact, to do anything until the grandstand had been called up on the telephone. It took some time to get a connection, and some time more to get back an answer, and then, at a quarter past one, it was definitely learned for the first time that the race had been called off some time before.

It is remarkable that of the thousands of New York motorists who visit Long Island during the year and who attend the Vanderbilt cup race, so few seem aware of the existence if the 92nd street ferry to Astoria and the route via Flushing to the scene of the contest. Practically all of them flock to the 34th street ferry and frequently stand in line for some time awaiting their turn to go aboard a boat to Long Island City, when the Astoria-Flushing route is usually free of heavy travel and affords a good road and a pretty ride, free of dust raised by automobiles, all the way to Highland avenue in Jamaica, where the main road to Jericho turnpike it met.

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HORSE AS A HILL CLIMBER

Affords Striking Contrast in Colorado Contest—Electrics also Make the Ascent.

More than 2,000 spectators witnessed the annual hill-climbing contest promoted by the Colorado Automobile Club, held near Denver, on Saturday, 15th inst. The course was up Loretto hill, a few miles south of Denver and was in excellent condition. It measured a few feet less than a half-mile, the grade varying from 3 to 12½ per cent. Nearly 200 automobiles were parked along various vantage points and residents of the Queen City made their respective ways to the course in all kinds of equipages. It was one of the most successful hill-climbing contests ever held west of the Rocky mountains. That the events were run off in good order with little or no delay is attested by the fact that there were forty cars in the fifteen classes provided for; the meet started at 2 p. m. and the spectators were on their ways home at 4:15 o'clock. Timing was by means of a special apparatus installed by a local telephone company. One amusing incident occurred. To prove how much faster an automobile is than its predecessor—the horse—one of the equine species attached to a buggy was timed up the incline. It took "Old Dobbin" just 15 minutes from start to finish and the fastest time made by an automobile was 43 seconds, nearly 2100 per cent. better.

G. A. Maxwell, driving a 50 horsepower Stevens-Duryea, made the best time in the gasolene car class, winning both the "not exceeding" 50 horsepower and "not costing more than" $5,000 events. In the former his time was taken at 46 seconds and it took him one second longer to win the other event. His runner-up in the horsepower class was Frank Botterill, who drove a Pierce, tieing with W. S. Cape's Thomas in 0:54½. In the price event the finish was almost the same as in the other, the Pierce mounting the incline in 54½ and the Thomas in 54¾.

Honors in all events were well distributed. William Dacy's 14 horsepower Mitchel carried them off in the $1,000 class, beating out a Ford, while the latter won in the horsepower class. E. L. Mathewson guided a 26-28 horsepower Olds to victory in the event for cars not exceeding 30 horsepower and was again in front in the $2,500 class. The first event was won in 1:03½ and the other in 1:01½. In the event for cars not exceeding $3,500 in price Mathewson guided a Thomas car across the line for first place in 54 seconds.

A novel event was that for electric cars, and so far as is known it was the first time an electric car has participated in a hill-climbing contest in this country. O. P. Fritchie, driving a car of his own construction, won in 1:38½. A. T. Wilson's 15 horsepower Ford scored in the high gear test, Hannan's Jackson running second. The latter won the race for cars not exceeding 22 horsepower. The fastest time recorded was made by a 20 horsepower steamer in trials for that class machine. George Herring climbed the hill in 43 seconds. The summaries follow:

For gasolene cars not exceeding 16 horsepower—Won by A. T. Wilson, 15 horsepower Ford. Time, 1:40¾.

For gasolene cars not exceeding 22 horsepower—Won by G. E. Hannan, 22 horsepower Jackson. Time, 1:11½. Charles Blitz, Franklin, W. B. Felker, Stevens-Duryea, tied at 1:17½.

For gasolene cars not exceeding 30 horsepower—Won by E. L. Mathewson, 26 horsepower Olds; second, R. W. Smith; third, G. E. Hannan, Jackson. Times, 1:03½, 1:15½, 1:55½.

For gasolene cars not exceeding 50 horsepower—Won by G. A. Maxwell, 50 horsepower Stevens-Duryea; second, Frank Botterill, 40 horsepower Pierce, and E. L. Mathewson, 50 horsepower Thomas, tied. Times, 0:46, 0:51½.

For gasolene cars costing $1,000 or less—Won by William Dacey, 14 horsepower Mitchell; second, A. T. Wilson, 15 horsepower Ford. Times, 1:25½, 1:37.

For gasolene cars costing not over $2,500—Won by E. L. Mathewson, 26 horsepower Olds; second, R. W. Smith, 24 horsepower Smith; third, G. E. Hannan, 45 horsepower Jackson; fourth, J. C. Wasson, 30 horsepower Mitchell. Times, 1:01½, 1:12½, 1:14¾, 1:16.

For gasolene cars costing not over $3,500—Won by E. L. Mathewson, 50 horsepower Thomas; second, Dr. F. E. Neress, 50 horsepower Thomas. Times, 0:54, 1:04.

For gasolene cars costing not over $5,000—Won by G. A. Maxwell, 50 horsepower Stevens-Duryea; second, Frank Botterill, 45 horsepower Pierce; third, E. L. Mathewson, 50 horsepower Thomas. Time, 0:47, 0:54½, 0:54¾.

For steam cars, free-for-all—Won by George Herring, 20 horsepower Stanley. Time, 0:43.

For electric cars—Won by O. P. Fritchie. Time, 1:38¼.

For cars running on high gear only—Won by A. T. Wilson, 15 horsepower Ford; second, G. E. Hannan, 22 horsepower Jackson. Times, 1:48½, 1:57.

Boosting Values in Minnesota.

Automobiles have been substantially raised in valuation in nearly every county in Minnesota by the State Board of Equalization, which met last week. The increases ranged from 10 per cent. to 100 per cent. The assessments on cars in Ramsey and Hennepin counties are reasonable, states the board, so it did not raise the tax in those counties. According to the returns, there are 1,573 automobiles in the State, as against 1,138 returned in 1905.

DEFIED FRIDAY, THE 13TH

And Even No. 13 Earned Perfect Score—Gymkana Followed Reliability Run.

Thirteen cars completed the first reliability run promoted by the California Automobile Club, on Friday, 13th inst., from San Francisco to Del Monte. The names of all those who made perfect records will be inscribed on the trophy, which will become the property of the winner of another test run-off between the successful entrants.

The route was from San Fransisco direct to San Jose, where an hour's stop was permitted. From San Jose the road lay through Gilroy, over the San Juan grade into Salinas. Through the Santa Clara valley the sky was cloudless, but in mountains a heavy Scotch mist was encountered that soaked every passenger as thoroughly as a brisk rain. The numbered automobiles, each with its fluttering green and yellow banners, excited much interest along the road and the natives lined the highways with eyes and mouths wide open. Occasionally a village constable tried to pick up a fine, but none of the entrants was arrested, though in Salinas vicious barriers of rocks across the road were set, certainly without provocation. Chickens, cattle and young hogs, however, caused more application of brakes than constables.

The greatest surprise of the day was in the ease with which almost every car, from the consumptive runabouts to whirring touring cars took the San Juan grade about thirty miles from Del Monte. This mountainous declivity is a long, stiff climb over the entire ascent and in places becomes almost precipitous, but every car got safely over the cloud-wreathed crest.

Californians are certainly not superstitious, or they would never have started, thirteen strong, on a Friday, for a run over dangerous mountain roads. The dual supposedly unlucky combination worked like a charm and even No. 13 finished without a mishap and with a clean bill. Even the committeemen, who were debarred from a chance at the prize, made perfect scores. C. A. Hawkins, with his White steam car, was among these.

Those who finished the run without a mechanical adjustment and on time, thereby getting clean sheets, are:

A. Van Valian, 20 horsepower Studebaker; Cuyler Lee, 30 horsepower Cadillac; Dr. Freeman, 30 horsepower Locomobile; E. M. Becht, 25 horsepower Stevens-Duryea; J. A. Landsberger, 30 horsepower Franklin; Burrell G. White, 30 horsepower Winton; Max Rosenfeld, 40 horsepower Peerless; W. Rarig, 30 horsepower National; Homer Boushey, 40 horsepower Pope-Toledo; E. J. Bowes, 16-20 horsepower Locomobile; C. C. Moore, 50 horse-

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power Thomas; and J. H. Baxter, 50 horsepower Thomas.

Stirringly sensational, the races held Saturday afternoon were undoubtedly the most successful from the spectators' view point of any that have ever been held on the track. Though the gymkana games were beyond peradventure amusing to the highest degree, it was not until the sun began to disappear that real neck and neck speed contests began to develop. The two-mile event for gasolene cars under 20 horsepower, was won by less than a length by Silas Hewson on a Locomobile, A. Van Valain (Studebaker) finishing second and W. H. Hooper (Stevens-Duryea) coming up very fast from the rear for third place.

The five mile race for touring cars with only the winner of the Del Monte cup excluded was also of the kind that makes women in the grandstand grow hysterical and men slam down the golden wagers on the rail. In the first heat a serious accident was narrowly averted. Tony Nichols, who rode in the Vanderbilt elimination race last year, held the wheel of a Franklin, and was running a neck and neck race with A. Piepenberg, in a White. In the first quarter of the fourth mile the steam car suddenly burst into flames and it seemed as though the driver could not stop the fast-going car in time to escape being horribly burned. While the men in the grandstands shouted and several women characteristically fainted, Piepenberg brought his blazing machine to a stop and Nichols rolled across the tape the winner. In the second heat a Pierce car simply majestically walked away from the other competitors. The final heat belonged to the Pierce from the time the flag dropped, and considering the soft condition of the track, John Fleming, its driver, made fast time, reeling off the five miles in 6:12. A lively set-to for second and third place resulted in Van Valain, in a Studebaker, beating out the Nichols' Franklin almost on the tape.

The White steamer won both the 100-yard dashes, but the Pope-Toledo and the Oldsmobile followed so closely that there was little to choose from the winner. A 100-yard dash over a six-inch wooden sidewalk on which it was necessary to keep two wheels the entire distance, brought home a Peerless and an Olds without once running off.

The race for the pretty Del Monte cup was not as interesting as it might have been had there been more contestants for the prize. It was specified that owners should drive and only three developed enough sporting blood to take a chance. J. A. Landenberger, in his Franklin, broke down, and M. Rosenfeld, Peerless, won out over Frank Miner, in a Locomobile. A White steam car captured the obstacle race with ease, but the most interesting of all the gymkana events was the ring spearing contest. The inimitable Nichols succeeded in spearing four of the elusive circles and a tie between Kniesley and Hewson had to be called off after several ineffectual attempts to settle the outcome on the track. As it was getting late several of the races had to be called off, but there were many happy recipients when the prizes were distributed after dinner.

Dorris Scores a Double Victory.

Duncan R. Dorris, driving a Ford car in one event and a machine of his own construction in the other, won both cups offered in the hill-climbing contest held by the Nashville (Tenn) Automobile Club, on Saturday, September 15th. The climb was made up a stretch of "Nine Mile Hill," said to be the steepest around Nashville, and splendid times were the order of the day. Two classes were provided for, one for cars costing more than $1,500 and the other for cars costing less. Dorris, in his own car, made the summit in 1:25⅗ in the class for the higher priced cars and in the other class drove J. C. Symmes' 12 horsepower Ford, climbing the hill in 1:34⅗. The summary of the times made by the cars in both classes follows:

Duncan R. Dorris, 30 h. p. Dorris	1:24⅗
E. C. Andrews, 30 h. p. Marmon	1:32
E. E. Sweeny, 24 h. p. Stevens-Duryea	1:32⅗
Duncan R. Dorris, 12 h. p. Ford	1:34⅗
C. Coddington, 22 h. p. Buick	1:40
Joe Lindauer, 30 h. p. Marmon	1:47⅗
S. Gilliam, 30 h. p. St. Louis	1:48⅗
Joe Yowell, 22 h. p. Buick	1:49⅗
C. Hooney, 18 h. p. White	1:58
J. W. Chester, 20 h. p. Clark	1:55
C. W. Caldwell, 12 h. p. Ford	2:04⅗
John Smith, 8 h. p. Oldsmobile	2:09⅗
Dr. J. A. Dale, 8 h. p. Ford	2:56⅕
T. Linehan, 8 h. p. Oldsmobile	3:55⅗
P. A. Shelton, 30 h. p. St. Louis	——

Caps as Causes of Speed Mania.

By the use of a self-recording thermometer a scientist has ascertained that a close-fitting cap, such as is worn by motorists, is the warmest kind of headgear available. Even the much abused "tile" was found to be ten degrees cooler than the peaked cloth cap which left a mark of 98 degrees Fahrenheit while the outside atmosphere was only 78. The Panama hat was at the other extreme and as this particular scientific M. D. is of the opinion that he has discovered the cause of speed mania in the shape of an overheated brain brought on by improper headwear, he is going to advocate the use of the Panama.

Messenger Boys in a New Rôle.

Messenger boys now have found a new job and it is one that is immensely to their liking. Their value as aids to unescorted females in New York has long been known and in the case of those who have engaged the boys' services for shopping tours, it is said that the uniformed escorts have amply earned their compensation. Their new rôle is that of automobile guide, or rather guide to automobile visitors, and if the boys could have their own way they would work for nothing, so tickled are they with this new assignment. Many out of town motorists struck New York for the first time in order to attend the Elimination Trials on Long Island last week and some of them paid for the services of the blue-coated Mercurys to avoid being lost after nightfall. The small boy proudly pointing out the streets to the driver beside him is lost in the capacious bucket seat to the ordinary observer, but to judge from the estimation of his own importance, it is hardly big enough to hold its occupant.

Why the Frenchman Stopped.

One of France's native citizens whose knowledge of English was just sufficient to permit him to understand "automobile talk" visited London recently and was driving on a crowded thoroughfare when his eye lit on a sign prominently attached to a pole on the sidewalk, which read, "Cars stop here," and he stopped, for the law is mighty and prevails in Paris where the chauffeur is concerned. Then he waited patiently for something to happen, but there was nothing doing for a long time when a bobby came up and wanted to know "W'y in blizes 'e was a'stoppin' hup the cross-walk." It did not take long for that particular Frenchman to comprehend that there were other "cars" in English besides automobiles.

New Mexico's "Automobile Road."

One of the most novel as well as most successful roads that has been constructed exclusively for automobiles is that in New Mexico, which was built by the Roswell Automobile Company and runs from Roswell to Torrence, a distance of 110 miles. The road is over a rolling plain and consists simply of two tracks, wide enough for the two wheels. A number of men are kept constantly going over the road and keeping it in such shape that it is almost without a bump. At places bridges have been made, but in each case there are but two troughs for the wheels of the machines. Horses cannot use these bridges as there are no places for them.

Queer Quirk of Missouri Law.

Whether or not it is a violation of the law to run two wheels of an automobile across the county line when it bears only a city license, is a point in Missouri law that will have to be decided when the case of John Youngblood is called to trial in a few days. Youngblood was arrested while delivering beer to a saloon just across the county line. He declares that when taken into custody only the two front wheels were inside the county limits. The decision will no doubt be interesting to Missouri motorists who have to carry separate tags for every county in the State, and there are 114 of them.

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APPREHENSION FELT ABROAD

In Both France and England Overproduction is Feared—Views Voiced.

Competition, at once the bane and the blessing of all trade, is at length beginning to assert itself in the foreign markets, to a degree which they have never known hitherto, and which threatens to overthrow not simply a good portion of the dividends which many of the more prosperous houses have been earning, but also to bring about an unavoidable curtailment in prices. Naturally enough, Paris, arrogant siren that she is, is first to feel the brunt of this effect, and the result is a general acknowledgement on all sides, though somewhat guarded, that this has not been a good year in the retail automobile trade. One of the Parisian dailies has recently instituted a canvass among the dealers, with the result of bringing out this unhappy fact, which, though by no means surprising, in the light of the growth of the other European automobile enterprises, seemingly comes as a blow to the boastful Frenchmen at their own homes.

"The season for the sale of high-class touring cars in Paris is a wretchedly short one, say five months in all," says this investigator. "After the middle of July, those dealers who find themselves with a stock of finished machines on their hands know very well that they are going to have a difficult task to get rid of them, even by reducing the prices somewhat. The customer who has not made up his mind by the middle of the year usually waits to see what the next year's model is going to look like. The man with the small town-vehicle to sell is in a happier position and he can often continue to trade briskly throughout the entire year.

"In certain quarters some apprehension is felt concerning next year. Up to now the fierce Italian competition so lavishly spoken of has not been really felt, owing to the fact that the majority of Italian factories have not been in a position to produce a sufficient quantity of machines to flood the market. If all reports are correct, the position next year will be different. The F. I. A. T. house, instead of producing 600 machines, has made arrangements for 1,200; the Itala, instead of 200, expects to turn out 600; the Bianci may construct 300 instead of 50. And so right through the long list of Italian houses."

"Taken in conjunction with the statement that England intends to produce 10,000 machines next year, these figures appear alarming; and when it is remembered that factories in Germany and Austria are growing all the while, and that the Belgium production is not to be despised, it seems obvious that that the struggle for supremacy in the automobile market is going to be fiercer than ever. Paris, of course, will bear the brunt of it as usual, and it is most likely that Paris will become less and less the exclusive automobile centre. All this should give joy to the prospective purchaser. It will be strange indeed if some notable fall in prices is not the outcome of the increase in production."

In this same connection, it is interesting to note the following expression of opinion from a British source, which shows that a general feeling of unrest and vague alarm is pervading the circles of the retail trade there as well as in the land of the fig and the frog.

"If 10,000 motor cars are made in Great Britain next year they will not be so easily disposed of as hitherto. Generally speaking, makers have all been working at high pressure and have been able to meet the demand. New factories, however, are springing up or are being extended in all parts of the Continent, so next year will see a huge stream of cars flowing into England. It will be a question of the survival of the fittest, and the question of fitness will apply to both the car and the man at the head of the business. It will not only be necessary to have a first-class article for sale, but the price will have to be low, and the business manager will require to know his business. Commerce will absorb a large number of vehicles and motor factories, the capacity of which is greater than the demand for pleasure vehicles, can construct motor cabs, ploughs, omnibusses and lorries."

The strictly ulitarian element in the Anglo-Saxon mind is plainly revealed in the suggestion that factories which are properly facilitated can confine a portion of their attention to the manufacture of commercial and agricultural motors. The Frenchmen, on the other hand, mourn the probability that Paris is doomed as the automobile center of the world, and mourning, fold their hands in misery. Yet neither of them are willing to take cognizance of the increasing power of the American maker in the motoring world. The American industry is only beginning to sprout in foreign parts, yet its power is felt already, and though France in England, and England in France, are assailing one another with trusty weapons, and Italy is storming both at once, the American maker is getting together his forces, and preparing for an onslaught which will sidetrack them all. And the watchword of the conflict which will be almost enough in itself to accomplish the end, is interchangeability.

According to a recent statistical compilation, there are at present forty-five automobile manufacturers in Italy, having a gross combined capital of $50,000,000, roughly speaking. Fifteen of these, with an aggregate of $20,000,000 invested capital, have been organized within a year.

TAXIMETER MOTOR CABS

Part They Play in Paris, Their Earnings and the Wages that are Paid.

To those who suffer from the annoyance due to the overcharges of cab drivers, the universal employment of taximeters, such as are extensively used abroad, and have more than once been considered as a probably beneficial innovation in this country, would come as a healing balm to an old wound. The growing use of motor cabs in the great traffic of London and Paris, together with the abuses to which the drivers were prone, literally forced the adoption of some system of automatically gauging the distances traveled with passengers and calculating the sums due in tariff. After an extended trial in Paris, they were adopted, first for the picturesque little "fiacres," and later for the motor cabs. Still later, they were introduced in London, where they are now employed to a considerable extent.

The instruments are entirely automatic in action, making a permanent record of the distances and fares, also being capable of being "set back" on the external dials at the close of every trip. The sealing up of the mechanism removes all question of doubt as to the honesty either of the driver or the register, and this fact, coupled with the low rates of fare charged, particularly in Paris, has gone far toward increasing their popularity both with the drivers and the public. And here, it should be interpolated that the class of patrons served by the cab companies abroad differs widely from that obtained in this country, on account of the far lower rates asked. In Paris, for instance, the minimum rate is but fifteen cents, and the increase with the distance, is proportionally low. In this connection, it is interesting to note the testimony of an official of the Paris Taximeter Motor Cab Company, given before the British Parliamentary committee on hackney carriage reforms:

"Owing to the keen competition of the electric lines, the cab trade began to wane," he said. "It wanted a fillip, and in August, 1905, 1,000 taximeters were put into use on Paris cabs. They were so successful that now there are 8,500 taximeters in use, practically all the passengers cabs being thus equipped. The results show the taximeter leaves no cabs in the yards, whereas before its adoption 15 per cent. were idle. It gives the cabman regular work in place of chance work, increases his wages, and does not interfere with his tip. It suits the public as is can not be tampered with, and the short-distance low fares are very popular.

"The cabmen have taken kindly to it. There has been no strike for twenty-two months; previously the strikes of Paris cabmen occurred, on an average, once every six

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months. With the taximeter, the Paris cab trade has taken $2,335,920 per annum in excess of previous years, 90 per cent. of this being due to the cheap short-distance fares. The instrument can not be sold. In order to maintain its reliability under police supervision, the company maintains the instruments in order and hires them out at a royalty to cab proprietors.

"Taximeter cabs in Paris make up to $4.87 per day. The cab driver receives 15 per cent. up to $7.80, above $7.80, 5 per cent. and even 10 per cent. to encourage him to make money. There is no difficulty in Paris in finding drivers for the taximeter cabs. Men who apply have to wait their turn."

Uses of the Indicator Coil.

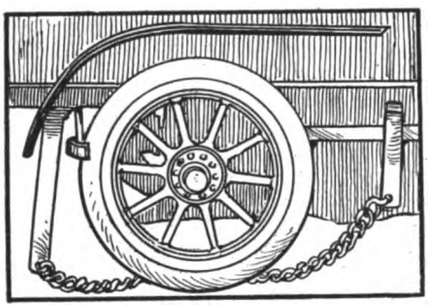
"Indicator coils" constitute the latest variation adopted by the coil maker to render his product more convenient to the user when the matter of locating a missing cylinder is on the tapis. As the name implies, these coils are designed to enable the driver to test the firing of the various cylinders without the necessity of cranking the motor. There are two sets of buttons, or eight in all. They are divided into four pairs, each one of which corresponds with a coil. Pressing the upper button starts the trembler of the coil buzzing by cutting in the battery current directly. This permits of testing the action of the tremblers without leaving the seat. The second row of buttons which is placed on the lower face of the coil box short circuits the secondaries and prevents a spark taking place at the plug, thus enabling the firing of the cylinders to be readily tested. By marking the coils to correspond with the order in which the cylinders fire the one that is at fault may be located in a moment and without the necessity of going through the more lengthy process otherwise involved.

Ingenious Insulation "on a Pinch."

A curious example of the ingenious way in which a really clever mechanic will make the best of circumstances, is brought out in the tale of one such who, out on the road, discovered a fault in the primary ignition wiring, which made further progress impossible. Aside from the insulation, the conductor was all right, but the heat of the motor had melted the rubber at a critical point, and an apparently hopeless short-circuit was the result. After a brief examination, the driver of the car, who is noted for his enterprise in times like this, footed it half a mile or so to a "corner grocery" of the typical sort, where he purchased a necklace of cheap glass beads. Removing the string, he threaded them one by one on the wire, from which he had previously stripped of the remainder of its insulation, and let it go at that. The result was most happy, and no further trouble from that source was complained of during the remainder of a rather long trip.

Odd Device to Prevent Skidding.

No danger is so constantly before the careful driver's mind as that of skidding; it is something over which he has little or control. A cool head and a quick hand on the wheel will often prove sufficient to avert a bad mishap in the case of an ordinary touring car, but when a heavily loaded vehicle, such as an omnibus, is concerned the driver usually finds himself powerless to check its sidelong sweep that brings things up all standing at the curb, unless some other obstruction intervenes. Up to the present, the means adopted to prevent it have all taken the form of appliances to be attached to the tire or integral with it. Devices in the shape of extra wheels, side



sprags to be attached to the car and others of a similar nature, have been advocated to little or no purpose. A rather curious variation of the latter type—that is, those to be attached to the body of the car, and one that appears to be practical to a certain extent as well, takes the form of a short piece of heavy iron chain fixed to the car at two points—one just in front and the other just behind the driving wheel and in different lateral planes so that the chains is really stretched at an angle across the wheel's path of travel.

This will be clear upon referring to the accompanying sketch of the device which illustrates its attachment to a heavy 'bus. The chain is fastened to two wrought iron arms extending downward and as long as the vehicle continues straight ahead the tire does not come into contact with the chain, but as soon as a curve is taken the tire immediately rides against the chain which affords an excellent grip of a wet or greasy pavement as long as the chain itself does not slide and the angle at which it is pressed is a preventive of this. The supports of the chain are movable and may be operated by the driver from his seat so that it is not necessary to have the chain trailing on the roadway at all times. Trials of the device on motor omnibusses are said to have resulted favorably.

Not One of the Pleasures of Paris.

One of the greatest crosses which the Parisian motorist has had to bear up to this time has been the system of inspection at the "octroi" gates, where on each outward trip, the driver of every car is forced to declare the amount of gasolene contained in the tanks, and receive in return a receipt from the gendarmes in charge. On his return, no matter whether in a few minutes or as many hours, the receipt must be given up, and the sentries satisfied that the estimate of the quantity is correct. The intention is to bring a check on the practice of purchasing fuel outside the city limits, where it is cheaper than within, and bringing it into the city limits for use.

But at a matter of fact, the system has given rise to innumerable disputes, and not infrequently the gendarmes feel called upon to inspect the machines, and ascertain for themselves how correct has been the declaration. This, naturally enough, gives rise to a good deal of friction between the motorists and police, and frequent disturbances result from over-zeal on the one hand, and attempted deception on the other. Recently, however, the touring commttee of the A. C. F. has taken the matter in hand and proposes to establish some sort of agreement between the gendarmes and the manufacturers and garage men, whereby a checking system can be put into force.

The Feat of the Prima Donna.

Goose stories, both of the wild and tame variety, appear to be in vogue on the other side at present. The wild variety came first and was to the effect that a motorist driving along an English country road was swooped down upon and attacked by a flock of wild geese. The press agent for a Hungarian prima donna who is an ardent follower of the sport and who always drives her own car, thought he could go this considerably better. Her record as a slayer of dogs, chickens and similar live stock on the roads round about Buda-Pesth was already high but this eclipsed all past performances, for according to her professional "attention attractor" she encountered one of the long files of geese that have a habit of leisurely ambling down the center of the main street of German and Hungarian hamlets and, like Baron Munchausen, absolutely annihilated it with a single shot. After ploughing through to the end of the line her string is said to have amounted to 140 birds.

To Amend Missouri Law.

The St. Louis Automobile Club last week drafted a bill which will be presented at the next session of the State legislature. The bill calls for the repeal of the automobile law passed in 1903, and the acceptance of the new draft as a substitute. Instead of limiting the speed of cars to eight miles an hour, the bill will ask that the limit be made twenty-five miles in the country, fifteen miles in the city where the streets are not crowded and six miles in the downtown districts. The most important provision is that which asks that one license be good in any part of the State, instead of a license for each of the large cities and a separate one for each of the 114 counties.

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The Week's Patents.

830,641. Yieldable Gear-Wheel. James A. Brown, Chicago, Ill. Filed Nov. 23, 1905. Serial No. 288,732.

Claim.—1. A yieldable gear-wheel having a central disk adapted for attachment to a shaft and having an enlarged rim at the outer edge, and two outer annular disks clamped together and having grooves at their inner edges in which said rim fits.

830,642. Motor-Vehicle. Ephraiem Chaquette, New Rochelle, N. Y. Filed June 19, 1905. Serial No. 265,894.

Claim.—In a motor-vehicle, a motor disposed forwardly thereof, a crank-shaft extending rearwardly therefrom and carrying change-speed pinions, a longitudinal driven shaft having a rigid bevel-gear at its rear end and a loose bevel-gear at its forward end, and carrying transverse change-speed sprockets adapted to be connected with said pinions; a rear axle carrying loosely two opposed bevel-gears meshed at opposite sides with the rear bevel-gear, and means for clutching either one of said opposed gears to the axle; together with a jointed forward axle having means for flexing in steering, and carrying a bevel-gear in mesh with said loose bevel-gear on the driven shaft, and means for clutching said bevel-gear to its shaft with the forward drive of the rear axle.

830,873. Cushion-Tire for Vehicle-Wheels. Linda H. Barry, Durango, Mexico. Filed Oct. 11, 1905. Serial No. 282,354.

Claim.—1. A cushion-tire for vehicle-wheels comprising a series of semicircular springs arranged upon the rim of the wheel, the ends of the springs being bent inwardly to form a convex surface and provided with a stop, a second series of circular springs mounted on the first series, the ends of the springs being bent inwardly to form a concave surface for engaging the convex surface and provided with a notch for receiving the stop.

830,898. Gas-Engine Sparker. Stephen A. Hasbrouck, Yonkers, N. Y., assignor to Anna M. Hasbrouck, Yonkers, N. Y. Filed Aug. 26, 1903. Renewed Feb. 10, 1906. Serial No. 300,497.

Claim.—1. In a sparking mechanism for gas-engines, two contact members, an oscillatory stem eccentrically supporting one of said members, an anvil-arm extending laterally of said stem, a rock-shaft, a hammer-arm extending laterally thereof, the sides of said arms taking a flat bearing against each other toward their ends under normal conditions, a spring connected to said stem and said shaft and exerting a strain across said bearing, and means to rock said shaft and quickly release same.

831,044. Explosive-Engine. Herman Dock, Philadelphia, Pa. Filed Nov. 6, 1903. Serial No. 180,005.

Claim.—1. In an explosive-engine, in combination, a cylinder, a carburetter, connection between the carbureter and the cylinder, a source of air-pressure supply, a pipe leading therefrom to the carburetter, a pipe leading from the atmosphere to the carburetter, and means to connect the carburetter with either the atmosphere or the air-pressure supply.

831,048. Gas-Engine. Fay O. Farwell, Dubuque, Iowa. Filed Jan. 21, 1901. Serial No. 44,162.

Claim.—1. A gas-engine comprising a stationary crank shaft, a series of co-operating cylinders and pistons rotating about said crank-shaft, means for supplying an explosive charge to the cylinders, means for supplying air between the piston and said charge, and means for igniting and exhausting said charge.

831,065. Power-Transmission Apparatus. Walter D. Hawk, Chicago, Ill. Filed Oct. 30, 1905. Serial No. 285,075.

Claim.—1. In a power-transmission apparatus, the combination of a shaft, a disk thereon, two sets of friction-rollers mounted to engage said disk on opposite sides of the disk-axis, the rollers of each set being mounted to engage the disk on opposite sides thereof, means for causing one set or the other set of rollers to engage said disk, and a second shaft connected to said rollers, substantially as set forth.

831,269. Storage-Battery Electrode-Plate. Thomas A. Edison, Llewellyn Park, N. J., assignor to Edison Storage Battery Company, West Orange, N. J., a corporation of New Jersey. Filed Mar. 5, 1903. Serial No. 146,342.

Claim.—1. In a storage battery, in combination with an alkaline electrolyte, an inactive and insoluble electrode-plate having pockets containing active material, one portion of the pocket being of comparatively thick metal and another portion of thin elastic metal supported by the thicker metal, substantially as set forth.

831,274. Electric Sparking Mechanism for Explosive-Engines. Hiram A. Frantz, Cherryville, Pa. Filed Jan. 9, 1905. Serial No. 240,133.

Claim.—1. A sparking mechanism for explosive-engines, comprising in combination with the cylinder-head having a cooling-jacket, a pair of electrodes, a pivoted lever carrying one of said electrodes, means for acting on one end of said lever for normally maintaining the electrode at its other end in contact with the other electrode, means for periodically operating said lever to break said contact and ears depending from said cylinder-head and between which said lever is fulcrumed, said ears being approximately in contact with said lever throughout their length and prolonged beyond the fulcrum of the latter and terminating contiguous to the ends of the same, whereby they support and guide said lever and also efficiently transfer thereto the cooling effect of said jacket, substantially as described.

831,276. Vehicle-Spring. Samuel Furmidge, St. Louis, Mo., assignor to Supplementary Spiral Springs Company, St. Louis, Mo., a corporation of Missouri. Filed July 13, 1905. Serial No. 269,453.

Claim.—1. In a vehicle-spring, the combination of a pair of leaf members and a pair of helical springs interposed between the ends of same, the ends of said helical members being cross-connected at top and bottom to said cross-connecting means.

831,286. Explosive-Engine. Frank A. Jahn, Davenport, Iowa. Filed Aug. 12, 1905. Serial No. 273,892.

Claim.—1. The combination with a crank-shaft and the exhaust-valve of an explosive-engine, of a lever for operating the valve and carrying a rotatable star-wheel, and means carried by the crank-shaft for setting the star-wheel and bearing down thereon to tilt the lever and open the exhaust-valve.

831,300. Power-Transmitting Mechanism. Herbert H. Roosa, Lincoln, Neb. Filed Sept. 11, 1905. Renewed June 22, 1906. Serial No. 322,953.

Claim.—1. A power transmitting mechanism, comprising a driving-disk, a driven disk at a right angle to the driving-disk, an intermediate disk at right angles to both said disks and inconstant frictional engagement with the driven disk, means for moving the intermediate disk into and out of frictional engagement with the driving-disk, and means for moving said intermediate disk relative to the axes of said driving and driven disks.

831,308. Wheel for Vehicles. Thomas D. Stagg, Selby, England. Filed Oct. 28, 1905. Serial No. 284,851.

Claim. 1. In a wheel, the combination, with a metallic rim provided with an internally-projecting circumferential flange and an inclined seat for the end of a spoke, provided with a beveled end which abuts against the said seat, means for preventing the said spoke from slipping sidewise on the said seat, a cover bearing against the front end of the said spoke, and a bolt passing through holes in the said cover, spoke and flange and forcing the beveled end of the spoke against the said seat.

831,343. Friction-Clutch. Albert Herisson, Nimes, France. Filed May 29, 1905. Serial No. 262,842.

Claim.—1. A friction-clutch comprising a cup-shaped member having depressions in its inner wall, and oppositely-disposed to one another, an elastic ring mounted within the cup-shaped member, movable shoes adapted for engagement with the said elastic ring and fixed to the shaft to be driven, pivotal arms operable on said shoes, and means slidable on shaft to be driven for operating the arcs to move the shoes in contact with the elastic ring.

831,384. Vehicle-Wheel. Charles T. Schoen, Moylan, Pa. Filed Oct. 30, 1905. Serial No. 285,000.

Claim.—1. A vehicle-wheel, comprising essentially a steel disk having a tire-receiving rim and a central annular web, a sleeve secured to said web and extending laterally on both sides of the disk, an axle-box arranged within the sleeve, compression springs applied externally to said axle-box, and means for connecting the sleeve and axle-box and positioning and retaining the axle-box and springs within the sleeve.

831,416. Transmission-Gear. John Chalmers, Bath, Me. Filed Jan. 4, 1906. Serial No. 294,554.

Claim.—1. The combination of driving and driven elements, a gear attached to the driving element, a second gear, connected gears meshed respectively with the two gears first named, a reverse-gear driven from the second-named gear, and means for connecting the driven element with either the reverse gear or the second-named gear.

831,499. Motor-Vehicle. John A. Carr, Denver, Colo., assignor of one-half to Chas. J. Koehler, Denver, Colo. Original application filed Nov. 22, 1904. Serial No. 233,877. Divided and this application filed Oct. 5, 1905. Serial No. 281,508.

Claim.—1. In a device of the class described, the combination with axles and a framing, of axially-alined shafts journaled in said framework and having their ends spaced apart, disks carried by the contiguous ends of said shafts, a power-pulley movably mounted between said disks, and means for moving said disks toward and away from said power-pulley.

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"Justice" of the German Brand.

According to a cable report an American motorist—name not given—who has run up against the German way of doing things is for from being enamored of them. He is of the opinion that the Teutons have decidedly "taking" ways and his experience is hardly such as to encourage intending tourists to include the Fatherland in their itinerary of the Continent. He was stopping at one of the many sanitariums in the Black Forest and had occasion to drive to Strasbourg via Kell. On his return he was stopped by the police of Kell, for the reason that his speed through the town earlier in the day had been excessive. He was allowed to go without further formality upon giving the head of the sanitarium as a reference.

A few days later a policeman called upon him with a notice informing him that he had been duly fined $12 and must settle on the spot. The notice also contained permission to appeal which was availed of and the payment of the fine deferred. The case lapsed for three weeks when he was visited by a corporal's guard of two policemen reinforced with a warrant accusing him of having committed some offense unknown. When taken before the magistrate he was ordered to pay $12, the same amount was mulcted from his chauffeur and another $12 thrown in as costs. No charge was made and no defense heard. The victim paid up perforce announcing at the same time his intention of having the case heard before a proper tribunal as there had been no proceedings whatever that far. To his amazement he was informed that by paying the fines he had surrendered his right to appeal and the case was dismissed.

Less than a week after that another polite notice was sent to the effect that his chauffeur had been found guilty of $12 worth more of overspeeding when driving a month previous to that time, and to add insult to injury, the police notified the motorist that he must not leave town without informing them. The American Embassy has been requested to investigate.



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Stay-Rite Plugs Stay Right Longer than all others. Because their double porcelains do not break. Air space does not allow short circuiting. Short, protected point will not cause pounding. Mica plugs do not loosen and cannot be broken. Secure list of 150 cars and right size plugs, and save bother. 47 sizes. Spark Coils, etc.

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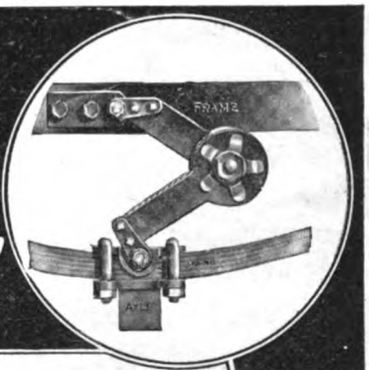
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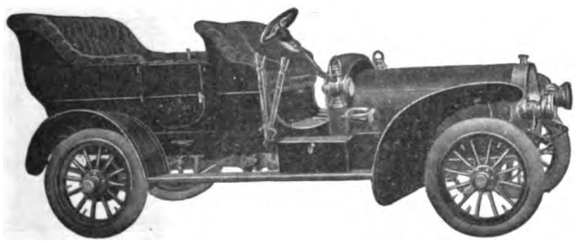
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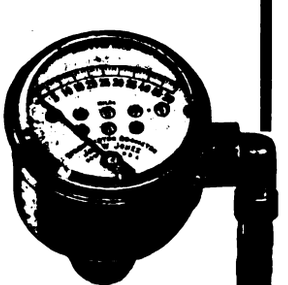


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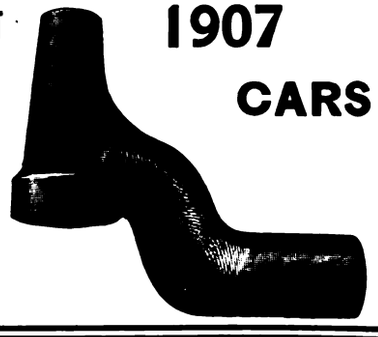
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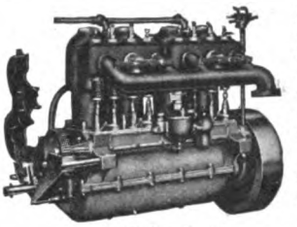
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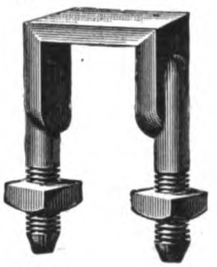
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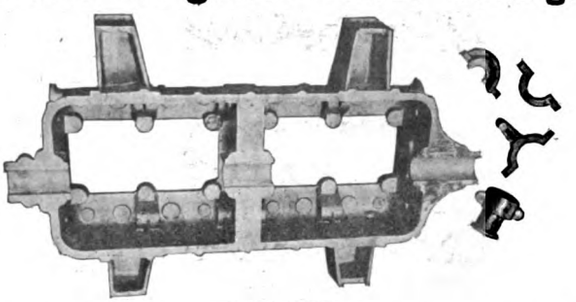
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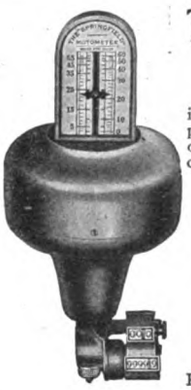
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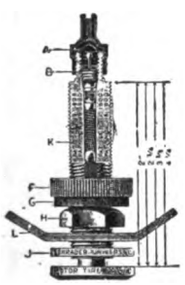
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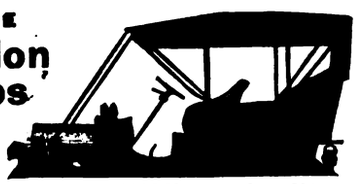
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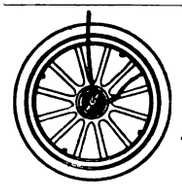
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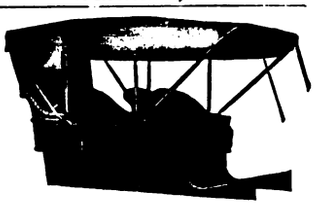
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Agents wanted.

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Classed as an accessory the shock absorber really comes closer to being a necessity than any other known motor car appliance.



The Diezemann Shock Absorber

is by far the most practical of all absorbers. It is provided with a self-lubricating system that definitely places it above the plane of all other frictional retarding devices. It does not require regulation when once properly adjusted. Satisfactorily used on the racer, touring car or commercial vehicle.

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From Steel Bar to Finished Car

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The Baldwin Chain Company
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Automobile Chains, Sprockets, Spur and Bevel Gears.
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Will never miss at high speed. Write for price list.

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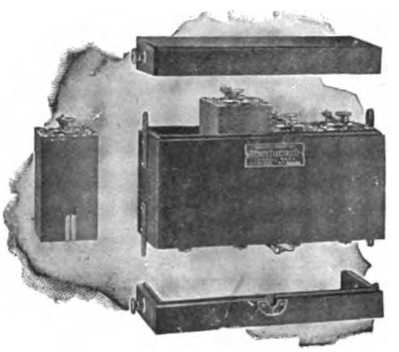
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WILL INCREASE THE POWER OF YOUR ENGINE FROM 10 TO 15%.

Are the most thoroughly constructed coils on the market producing the hottest spark and having the most rapid vibrator.



ARE GUARANTEED AGAINST BURNING OUT.

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You will get there and you will get back if you use COLUMBIA IGNITOR DRY CELLS

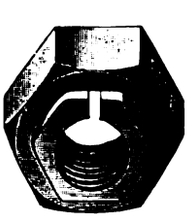
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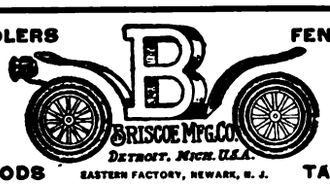
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Roadside Troubles One little nut dropping from a bolt will put your car, self and party out of the road, out of patience and out of words suitable to express your feelings. Why take the chance of being on the outs when **COLUMBIA LOCK NUTS** will hold tight and insure of your bringing all of your car home? Send us a two-cent stamp, **SIZE** and **THREAD**, and we will send you a nut to put on that bolt you had to get out and tighten yesterday.

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THE LAMBERT Famous Friction-Drive Car.

Models and Styles to Suit the Purchaser.

PLEASURE CARS, RUNABOUTS and TOURING CARS, and Lambert Patented Friction Drive COMMERCIAL TRUCKS. Prices $900 to $3000. Write for particulars.

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and save all arguments

W. E. B. Spark Plug

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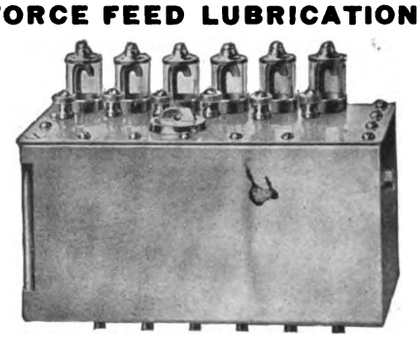
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Standard $1.50 Metric

Write for "The Man a-Motoring."

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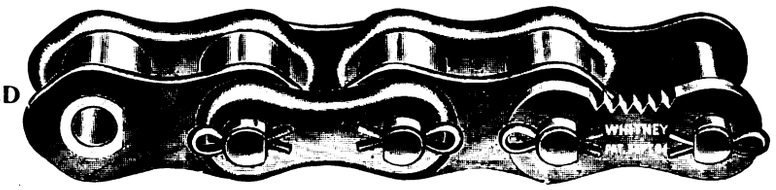
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"Whitney" Chains in the GLIDDEN Contest were used more extensively than all others combined and made their customary records for efficiency.

PATENTED  PATENTED

Springfield Mass., August 10, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—In reply to yours of the 9th, we are pleased to advise you that we used Whitney chairs on both our pleasure and commercial vehicles in the Glidden Tour, both of which finished with perfect scores, having no trouble whatever with chains, and without the slightest care or attention the same finished the trip in perfect order.

Yours very truly, KNOX AUTOMOBILE COMPANY.

New York Office, August 22, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—I beg to acknowledge receipt of your favor of the 21st inst., with reference to the Whitney chains which were used on the Mark 47 Columbia car that I drove in the Glidden Tour. Replying, would say that we experienced no difficulty or trouble at all with the chains and the test was severe indeed.

Yours very truly, ELECTRIC VEHICLE COMPANY.

Buffalo, N. Y., September 4, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—The two Thomas cars which competed in the Glidden Tour, one finishing with a perfect score and the other with two points against it on account of a technicality, were both equipped with Whitney chairs. These chains were entirely satisfactory and we shall continue to use them for 1907 as we have in the past.

Very truly yours, E. R. THOMAS MOTOR CO.

Cleveland, Ohio, August 15, 1906.

WHITNEY MFG. CO.,

Gentlemen—Replying to yours of the 13th, beg to say that neither of our two cars entered in the Glidden Tour experienced the slightest chain trouble, nor did our two 1907 cars which we drove from Cleveland to Bretton Woods in four days, and later won from all comers in all three events in the Crawford Notch Hill Climb. We beg to say that we are running the same chains on these cars at present.

Very truly yours, THE F. B. STEARNS CO.

Lansing, Mich., August 15, 1906.

THE WHITNEY MFG. CO.,

Gentlemen—Referring to your letter of August 13th, wish to state that we used Whitney Roller Chain on the REO car in the Glidden Contest and it proved very satisfactory, having no trouble whatever from that source.

Very truly yours, REO MOTOR CAR COMPANY.

Hagerstown, Md., August 15, 1906.

WHITNEY MFG. CO.,

Gentlemen—Answering your inquiry of the 13th as to whether we experienced any trouble with the chains on our Model "C" touring car, which was sent through the Glidden Tour, take pleasure in stating that the chains gave excellent service and that no trouble whatever was experienced throughout the run.

Yours truly, CRAWFORD AUTOMOBILE COMPANY.

THE WHITNEY MFG. CO., Hartford, Conn.

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The Motor World

Volume XII
No 2

New York, N. Y., U. S. A., June 14, 1906

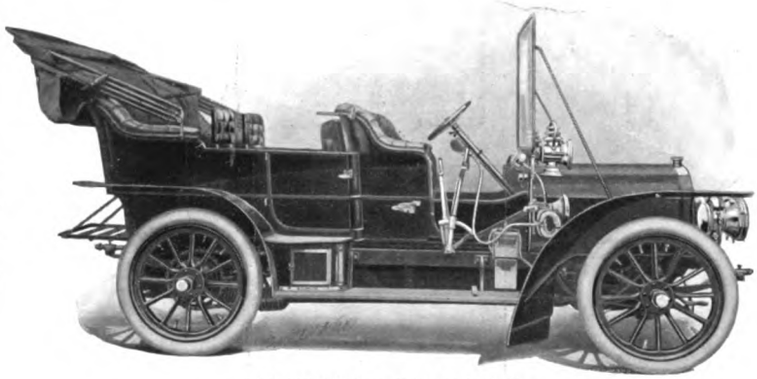
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The distinctive feature is

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CHROME-NICKEL STEEL used throughout in construction of shafts, transmission and gears



HESS-BRIGHT IMPORTED ball-bearings secure perfect transmission of power from engine to wheel

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A Car Designed for the Fastidious and Discriminating Purchaser who desires the best that money can procure.

40-45 H. P., $6,000. 60-65 H. P., $7,500

Inspection and comparison will prove the truth of the statements to any one.

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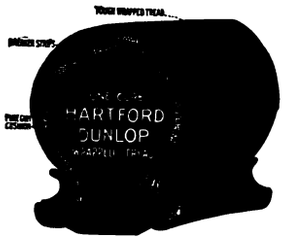
QUALITY begets SERVICE!

YOU WANT
YOU MUST HAVE
WE MAKE

GOOD TIRES

HARTFORD

DUNLOP
CLINCHER
UNIVERSAL RIM



THE HARTFORD RUBBER WORKS CO.,
HARTFORD, CONN.

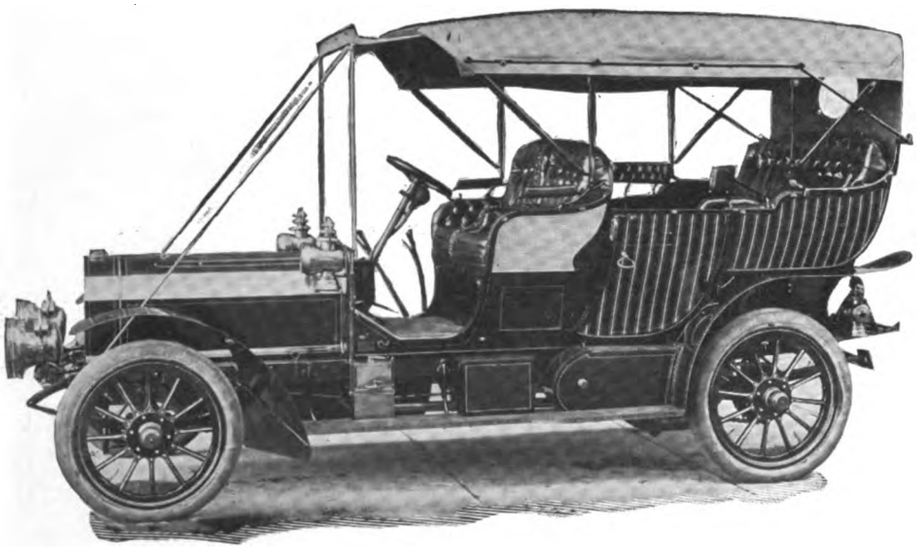
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1906 Models are Built Strong as Locomotives. For Every Day Service the Year Around.

Apperson cars give better and more Regular Service at less Expense than any Car made.

We make Nothing but High Class, High Priced Cars, for those who want the Best.

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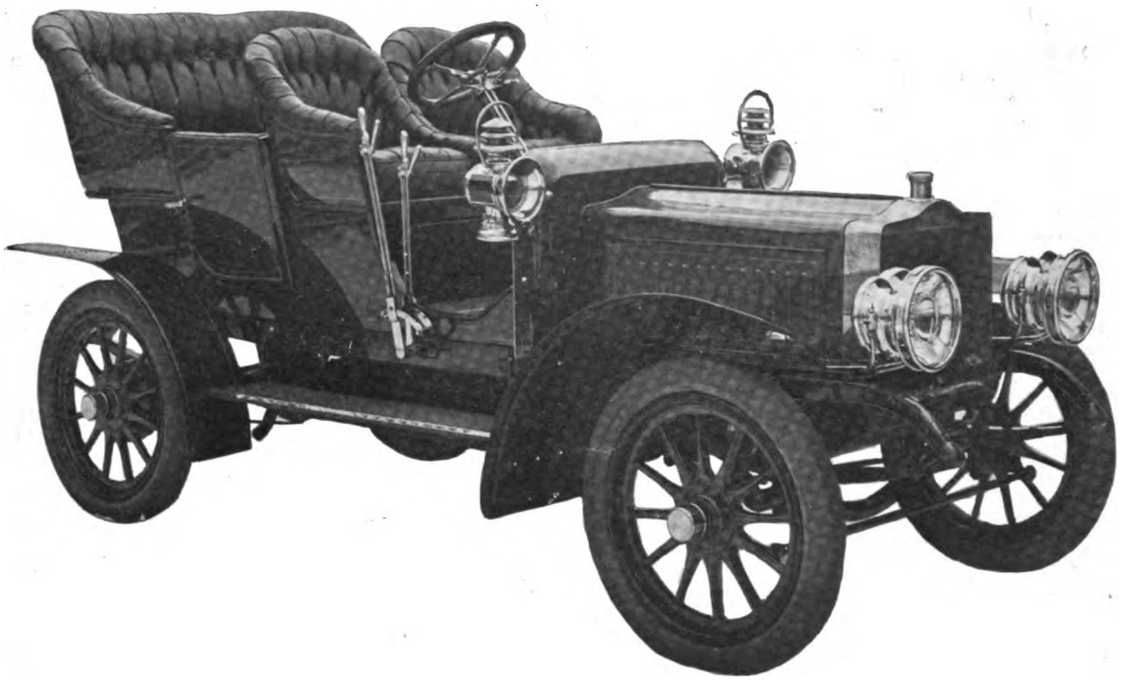
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MODEL D-4

Has already "made good" and proved an eye opener, its work under the severest conditions more than justifying every claim made for it.



Four Cylinders, 24-30 H. P.

(Sliding gear transmission).

$1800.00

The man who wants his money's worth, wants a Mitchell!

In it he finds the same construction used in the highest priced cars with nothing left out.

In its performance he finds ample power, ease of running and control, and no shortcomings.

The price speaks for itself.

Then, why hesitate. Get in touch with us—now.

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Equipment at the Shows indicates a tire's popularity.
Service on the Road shows a tire's quality.

Diamond Wrapped Tread Tires

were the equipment on more exhibition cars at the Empire City Track Open Air Show than any other make.

DIAMOND WRAPPED TREAD TIRES were the equipmenton the 35-40 H. P. Knox Car in its world's Record, non-stop run from Springfield, Mass , to New York and return on Memorial Day. Time, 19 hours, 53 minutes—Car, passengers and baggage weighed 4485 pounds

TIRES WERE NOT TOUCHED ON THE ENTIRE TRIP.

READ THIS TELEGRAM:

DIAMOND RUBBER CO: Diamond Tires went through the Boston-New York and return non-stop run without any trouble of any kind, carrying seven passengers and three hundred pounds of baggage.

MAY 31. THE TIRE F. R WEAR. KNOX AUTO CO.

Let us send you our new catalogue and instruction book.

THE DIAMOND RUBBER CO., = = Akron, Ohio.

Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded

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THE ELIMINATION OF VIBRATION.

Easy on the machinery and easier on the nerves.

With a long, perfectly-balanced piston stroke, clean cut construction and an entire absence of complexity of any kind, the Northern is the ideal gentleman's roadster. It is best appreciated where best known.

If you see it and don't hear it, it's a Northern.

It will pay any automobile dealer to acquaint himself with the Northern. When understood, the principles of its construction appeal to more people and the car itself is better adapted to their requirements than any other automobile built. We'll gladly supply additional information and proof.

THE NORTHERN MANUFACTURING CO.,

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The Motor World

Volume XIII
No. 17

New York, N. Y., U. S. A., September 27, 1906

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MATHESON

50 AND WON FIFTH SECONDS

"The-seven-passenger-seventy-miles-an-hour Touring Car" at Atlantic City, September 4 and 5, broke THE WORLD'S RECORD, defeating the Winner of the Touring Car championship and the victor of the races for foreign cars.

THE MATHESON, this great AMERICAN Stock Touring Car, is the FIRST and ONLY CAR which has substantiated the CLAIMS made by others.

In the elimination trials, a MATHESON 60 HORSEPOWER stock racing car although it hit a telegraph pole and ran up a steep bank was not injured, showing its strength and durability. The engine remained in perfect condition.

Licensed under Selden Patent.

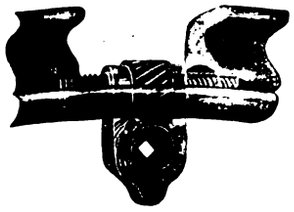
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PHILADELPHIA BRANCH:—THE BELLEVUE-STRATFORD GARAGE

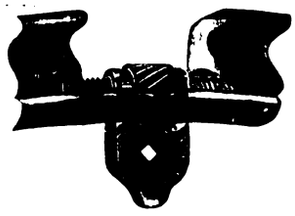
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Operated by small, square-end crank wrench, carried in regular kit

"A Small Thing to Look For; a Big Thing to Find"

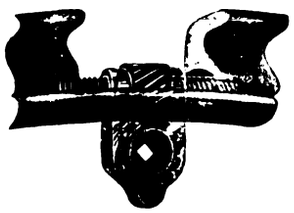
New Turnbuckle for Hartford Tires



Threads and Gear "one-piece," positively no "give" to either

To be fitted regularly for 1907 and thereafter to all Hartford Universal Rims, **taking either Dunlop or Clincher Type Tires.** ¶Secures the proper adjustment of tire to rim with absolute and unvarying success, the turnbuckle taking up any variation in the detachable ring. ¶Does away with the inability to use any other than the particular size of tire always called for by a fixed rim.

Better become acquainted with this new feature in order to **be convinced in time to insist upon it** when specifying the equipment for your new car or re-equipping the old one.



Expanding and drawing together of ring are simple reverse operations

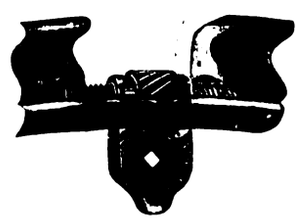
¶Illustrated booklet is out, to be had for the asking. Watch for our demonstration cars, and look out for new facts in following advertisements Prices and quality *absolutely maintained.*

The Hartford Rubber Works Co.

Hartford, Connecticut, U. S. A.

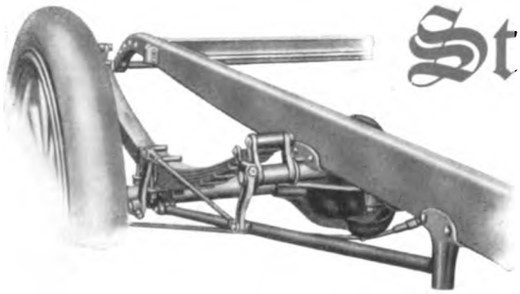
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New York	Philadelphia	Chicago	Detroit	Los Angeles
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Saves time in putting on and detaching tires

DUTY OF THE STRUT RODS



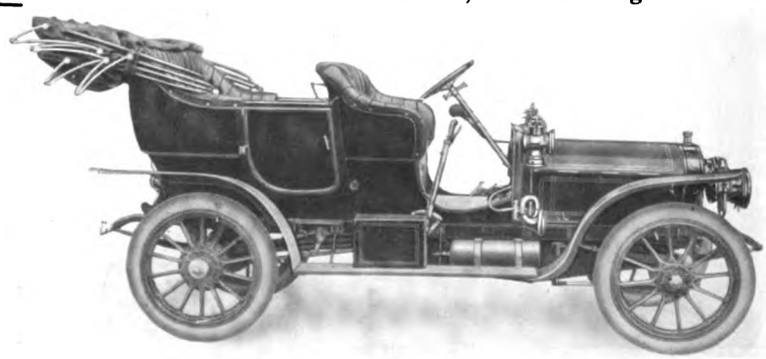
Stoddard-Dayton

ONE of our valued 1907 features of Stoddard-Dayton construction is the use of strut rods which carry all the forward motion from the rear axle to the frame work of the car, relieving the springs absolutely from the severe strains of driving, and taking up all the road shocks. Strut rods, made of seamless steel tubing, are in effect, a fully paid-up Stoddard-Dayton policy of

INSURANCE AGAINST SPRING TROUBLES

Rear springs, now hung on shackles at both ends instead of anchored at the fore end, have nothing to do but support the weight of frame and body.

Model F—a 5-passenger touring car, 30-35 H. P., equipped with our new Stoddard-Dayton motor, much more powerful than last year's engine; 4 cylinders (4⅝x5 inches); sliding gear transmission, selective type; 34 inch wheels.

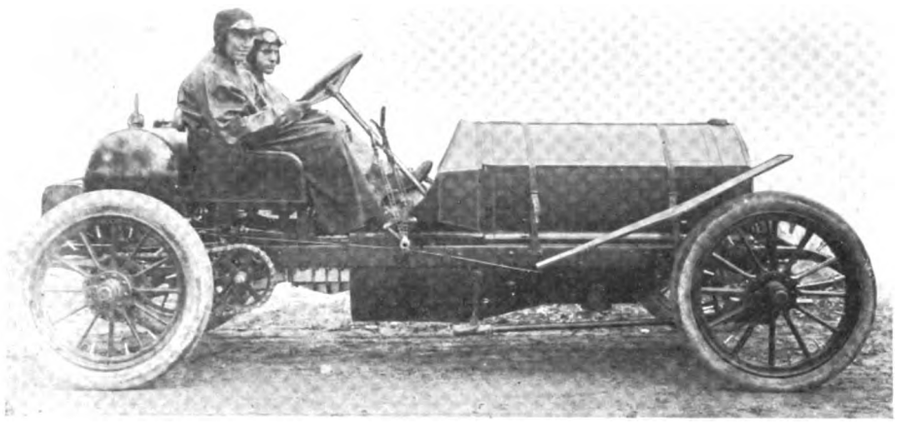


Price $2500 with full lamp equipment. Better than cars costing more. Our 1907 Advance Booklet will interest YOU.

THE DAYTON MOTOR CAR CO.

DAYTON, OHIO

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THE APPERSON RECORD

OF

29.71 MILES

IN

29.00—29.30

in practice was not equalled by any other car in the Vanderbilt cup trials.

Previous to its destruction (due in no way to the mechanism of the car itself) the performances of the car from the time of its first appearance on the course were the sensation of the occasion.

The APPERSON was picked as the winner by very many of the "wise ones."

That it did not have the chance to win is a matter of regret.

One thing it did do: It proved its class and its right to rank as one of the world's great cars.

ORDERS FOR REGULAR 1907
MODELS NOW BEING BOOKED

APPERSON BROS. AUTOMOBILE CO., Kokomo, Ind.

RETAIL BRANCHES BOSTON NEW YORK PHILADELPHIA CHICAGO

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Diamond
Wrapped Tread Tires
ON EVERY VANDERBILT CAR

the exclusive equipment of every American car entered for the Vanderbilt Cup race, eliminations and finals, they made in the trials, September 22d, a record unequalled in the whole world's history of great automobile contests. Only eight were changed in the whole contest—all on account of punctures or minor accident.

THE WINNERS SAY:

JOSEPH TRACY, LOCOMOBILE, FIRST:—"I have always used Diamond Tires. They gave me wonderful satisfaction in this race. My only trouble was a pinched tube and my tires were in fine shape at the finish."

LE BLON, the great French driver, THOMAS, SECOND:—"I find Diamond Tires the best I ever rode on. I changed only one tire in this race. I have been accustomed to change rear tires twice in any such race. All the tires were in fine condition when the race ended.

H. N. HARDING, HAYNES, THIRD:—"A puncture or two was my only trouble, and I know the track was full of nails."

HERBERT LYTLE, POPE-TOLDEO, FOURTH:—"Diamond Tires have always given me great service. Barring an accident, due to puncture, I had no trouble to-day."

WALTER CHRISTIE, CHRISTIE, FIFTH:—"I want no better tires for the big race than the Diamonds I used to-day. They gave me absolute satisfaction."

The brilliant French driver, GUSTAVE CAILLOIS, expressed unbounded satisfaction with his Diamond Tires. He said:—"They are very, very fine. I never dreamed a tire could be so fine."

YOU can have tires like these on your car if you wish. The cup trials were the first public appearance of our 1907 construction.

THE DIAMOND RUBBER COMPANY, Akron, Ohio



Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

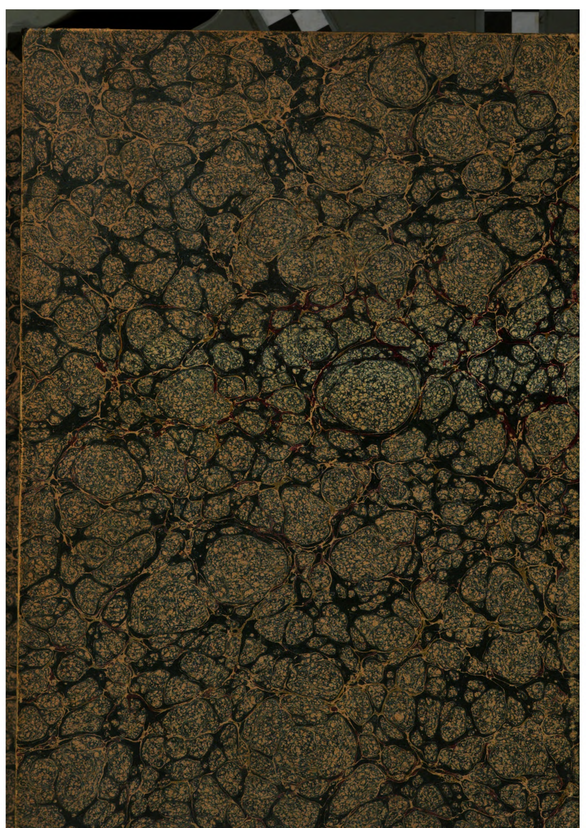
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